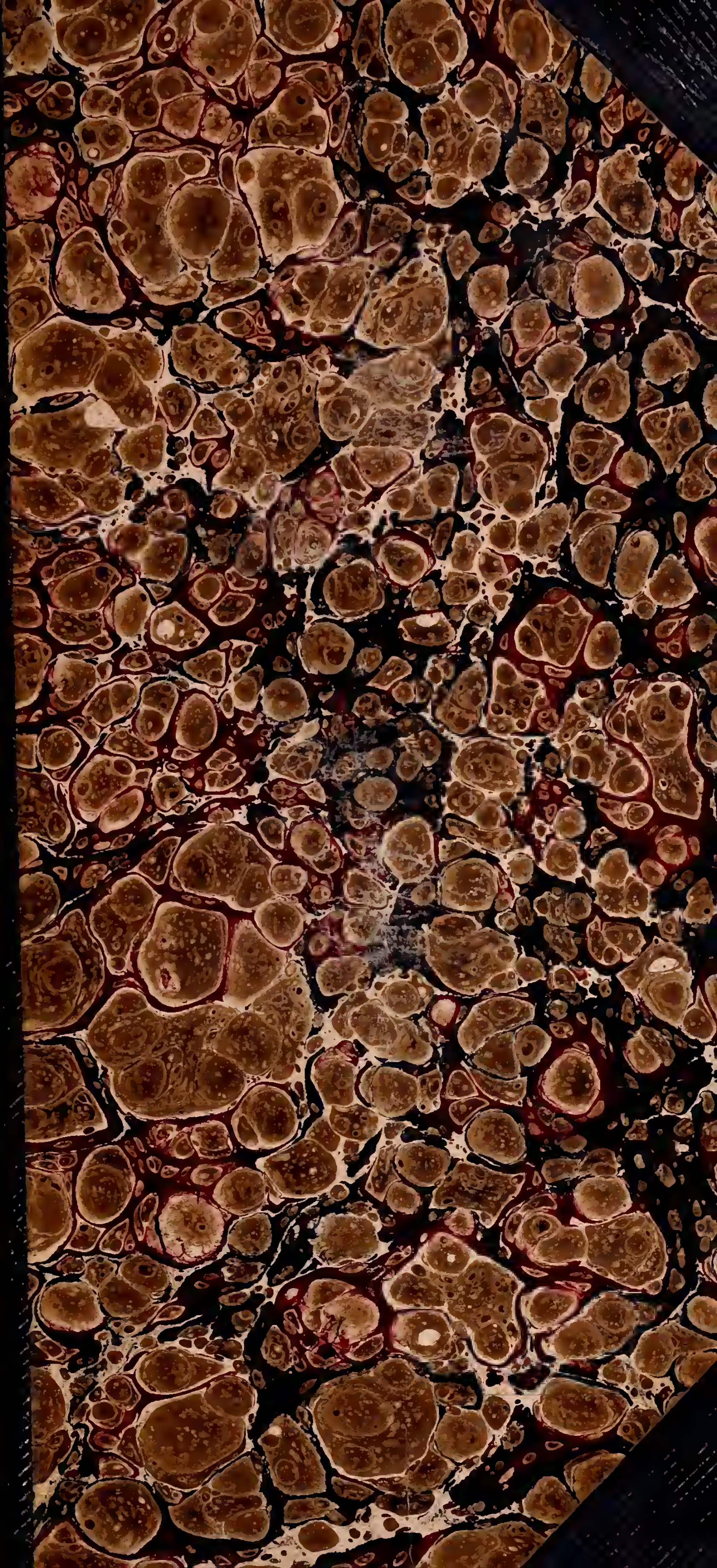

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GAILLARD'S MEDICAL JOURNAL.

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ORIGINAL ARTICLES

COMMON SORE THROAT.*

By JAMES H. ATLEE, M.D., Chattanooga, Tenn.

Ignoring the synonymous terms—follicular amygdalitis, acute pharyngitis, and angina simplex—I desire to call attention to the "common sort throat," which is almost universally present, and with which all are more or less familiar. Although treating of sore throat from a practical standpoint, and not as a specialist, I hope that something may be said which will make this paper of greater import than the subject at first suggests.

A simple sore throat in itself, is thought to be a trifling affection, undeserving the attention of a physician; but when we remember that the throat is involved in many of the maladies of childhood, and among these are contagious and infective diseases, and that the sequelæ are often most serious, we are more and more impressed with the fact that a sore throat must not be ignored. The frequency with which a sore throat is the initial symptom of many of the diseases which are so fatal to children, suggests the importance of early recognizing in the throat the first digression from a healthy appearance. Parents and physicians alike are inclined to overlook a beginning sore throat, and to neglect its care until some graver malady has developed.

The examination of the throats of complaining children, at the very beginning of the attack, is essential, not only that the symptoms of the onset of the disease may be learned, but that the patient may be placed under the most favorable conditions for his own safety, and that the well members of the household, as far as possible, may be protected from a possible contagion. It is a good custom to cultivate, that of examining the throats of children whenever sick, whether or not complaint has been made of these parts. Especially is this precaution of value during epidemics of infectious diseases, for upon the first appearance of any inflammatory process, the child can be kept at home, and isolated until the disease assumes some more definite form. It is in this way that the spread of infectious diseases, attended with sore throat, can be controlled. The throat in these affections very often does not assume its characteristic appearance, so that a diagnosis can be made a first sight, until it is far too late for the welfare of the individual, or for the protection of others. It is only after opportunity has been given for the spread of the contagion to various and remote foci that the precautionary measures are taken.

---

*Read before the Tri-State Medical Association, Oct. 13, 1897, in Nashville, Tenn.

Causes of Sore Throat.

Acute sore throat, although occurring at all ages, is more particularly a disease of childhood, and although recognizing no boundary as to climate or period, it is more prevalent during cold and damp seasons, and when sudden changes of temperature are taking place. As a predisposing cause there may exist some cachexia, scrofula, syphilis, rheumatism, etc., or the cause may be sought for in the surroundings, continued exposure to foul air, defective drainage, the drinking of impure water, and living in badly ventilated houses. Some children seem to possess a predisposition to attacks of sore throat without any existing cachexia, and the susceptibility to the disease seems to increase with each recurring attack.

The exciting causes are usually undue exposure to cold and damp, the inhaling of pungent vapors, the drinking of hot and irritating liquids, and exposure to infectious diseases with throat manifestations. Perhaps there is no one cause which tends to keep up an inflammatory condition of the throat more than an irritation of the middle and posterior nares. The two are often associated and the inflammatory condition of the throat will remain until the nasal trouble is corrected.

Sore throat often occurs in epidemics, and as such is an infectious disease, spreading through families, schools and communities.

Symptoms of Sore Throat.

A sore throat manifests itself by pain and itching, with a feeling of fulness in the throat, and a continued tendency to cough and expectorate. There is some febrile disturbance, an accelerated pulse, coryza, a fetid breath and a coated tongue. There exists marked pain upon swallowing, hoarseness, embarrassed articulation and impaired hearing.

Upon inspection the fauces are of a bright red color, the uvula is swollen and elongated, and by falling on the tongue creates a persistent desire to swallow. The inflammatory condition proceeding the mucous membrane becomes swollen, and the tonsils inflamed and enlarged, and covered with a muddy white membrane, which is perhaps a discharge from the nares, or else a secretion which oozes from the openings of the follicles on the surface of the swollen tonsils. This last exudate, unlike that of diphtheria, appears in small yellow or white dots, which do not coalesce, are strictly confined to the surface of the tonsil, and when cast off leave an ulcerated surface.

Differential Diagnosis.

In diphtheria, the initial symptoms are so nearly related to those of the common forms of acute sore throat that a diagnosis in the beginning is difficult. There is a dark redness and swelling of the arches of the palate and tonsils, with marked œdema of the uvula, and until the characteristic membrane appears, and the constitutional symptoms manifest themselves, the disease is quite undistinguishable from acute sore throat.

Likewise the sore throat in scarlet fever in its initial stage, appearing early, consists of a diffuse redness extending over the tonsils, palate and half arches, and in a swelling of the uvula and surrounding glands. The subjective symptoms are similar, and until the rash appears on the second day a diagnosis is uncertain.

That diphtheria and scarlet fever can be more readily communicated from the sick to the well, by persons suffering with sore throat, has long been acknowledged. The instances are numerous where children have contracted diphtheria from adults suffering with sore throat.

All these facts indicate how essential it is to care for even the ordinary attacks of sore throat, and as a precaution to isolate all cases until the outcome of the disease is known.

The treatment of acute sore throat is simple. Isolation, so far as possible, from the uninfected children of the household, confinement in a room of equable temperature, hot foot baths, and the administration of mercurial or saline cathartics. Every household should possess a good atomizer, with explicit instructions as to its use. As an antiseptic solution, to be used in the atomizer, one of carbolic acd and glycerin is preferred. Or a spray of Monsel's solution of iron, well diluted, is productive of good results. The spray, whatever it is, must be thrown well upon the tonsils and half arches, and back of the velum palati.

Attention must be given to the nose, which is almost always affected. The nostrils should be well atomized with the antiseptic solutions, and afterwards anointed with vaselin, or some agreeable ointment. This treatment observed every night at bed-time will soon be prolific of good results. In applying the ointment to the nostrils, a convenient method is by means of an ordinary soft rubber catheter, which after being thoroughly anointed is thrust through the nostrils into the posterior nares.

Attention to these parts, treating the symptoms as they appear, with isolation of the patients, are the chief points in the treatment.

SOME REMARKS ON ARTIFICIAL INFANT FEEDING.*

By WM. L. HARRIS, M.D., Virginia Beach, Va.,

Attending Physician to the Virginia Beach Sanitarium, and Resident Physician at Princess Anne Hotel, etc.

At first thought this may perhaps seem a rather simple subject for our attention to-night, but when we consider the enormous mortality from gastro intestinal diseases among artificially fed infants, and the close relation of artificial feeding to gastro intestinal diseases, I hope we shall be able to awaken some new interest in this subject; for I dare say there is more ignorance displayed in the ordinary methods of infant feeding than in any other important branch of medicine.

---

*Read before the Norfolk Medical Society, November 4, 1897.

The fault lies both with mothers and physicians; the mother doesn't know how to feed her child because she has never been instructed, and, in many cases, the physician doesn't know simply because he has never taken the time and trouble to familiarize himself with the rational methods of infant feeding, but, in the majority of cases, it is simply carelessness or indifference on the part of the physician.

It is the Duty of the Physician to Instruct the Mother.

It is the duty of every physician who attends a woman in child-birth to give the mother explicit directions as to the feeding of the child, and, as far as possible, see that she carries out his instructions. He should also never fail to impress upon her the fact of the great dangers of improper feeding.

Of course, if possible, the child should be allowed to nurse its mother, but if such is not the case, and a suitable wet nurse is available, by all means secure her; but in every case see that the nursing is done at regular and stated intervals, according to the size or age of the child; but I am digressing from my subject, for what I wish chiefly to speak of is bottle-feeding or artificial feeding.

But infant feeding is practised not only among the poor and ignorant, but also among some of our very best people.

The mortality among bottle-fed children is enormous as compared to that among breast-fed children. Recent statistics from the large cities of America and Europe show that infant mortality has been steadily increasing for the last twenty-five years. This is due to many causes, such as overcrowding, neglect, unhygienic surroundings, but as Holt well says, more important than all, is artificial feeding, as at present ignorantly practised. The capacity for maternal nursing seems to be diminishing each year, both among the poor and rich, hence there are more bottle-fed children now than ever before. The mortality from gastro-intestinal diseases seems also to be on the increase, both actually and relatively, except in a few cities in which they have adopted new methods of infant feeding. Artificial feeding *per se* is not to be blamed for the great mortality, but bad artificial feeding, which sooner or later results in some chronic gastro-intestinal disorder, makes a patient very liable to the acute diarrhœal diseases, and very apt to succumb. The child's system is below par, as it were, and is readily attacked by disease.

An Average Case.

Often a mother will bring to your office a poor, fretful, emaciated child, showing every sign of malnutrition; and will tell you it has been *sickly* all its life, and that it has a *weak* stomach and bowels, and that it vomits after every feeding, and has numerous actions every day. She comes to you to get medicine for its vomiting and diarrhœa. If you question her carefully as to the child's history, she will perhaps tell you a story similar to this: that a certain physician attended her in labor, and as she couldn't nurse the child, he told her to feed it on a certain brand of condensed milk. She fed it on this milk for several weeks, or perhaps even months, and the child gained in weight and seemed to thrive, but suddenly the child began to vomit, and have diarrhœa, and grow thin, so, at the suggestion of some lady friend or neighbor, she thought it wise to change to some other brand of condensed milk; but soon found the child did not improve, so she adopted the suggestion of some other friend, and tried Mellins' food, with equally bad results. She then used cow's milk, perhaps pure or diluted with an indefinite quantity of water, but found the child's symptoms to grow worse. Then, in deep despair, she comes to consult you and wants some medicine for the child's symptoms.

The picture may be slightly ovedrawn, but, with few slight modifications, it is identical with the history that can be obtained from hundreds of mothers.

It does seem to be a fact that many physicians regard the feeding of an infant as too simple for them to bother with, and they leave it entirely with the mother; and many mothers seem to think they can bring up the infant all right with the aid of a few suggestions from friends or relations.

Condensed Milk a Frequent Cause of Trouble.

In my limited experience, I have seen most trouble arise from condensed milk-feeding. Infants fed on condensed milk are usually overfed in quantity of food and underfed in quality of food. Condensed milk can be used to advantage to bridge over an emergency, as in certain acute illnesses, or to be fed with a proper addition of cream, but alone it rarely ever does well for any length of time. I have seen some very fat and apparently well developed infants fed entirely on condensed milk, but it is exceedingly rare to find an infant fed alone on condensed milk that hasn't some signs of rickets or malnutrition.

If we look at an analysis of condensed milk the reason is plain; it has too much sugar and too little fat. Mellins' food, and the various other artificial infant foods, are about the same as condensed milk, and are open to the same or similar objections.

Of course there are lots of poor mothers who are unable to buy any other food except these cheap foods, so they have to be used.

The nearest approach we have to mother's milk, or a perfect infant food, is cow's milk in modified form, to suit the size and age of the infant.

We must bear in mind that milk is not a single article of food, but a combination of foods, and that the fat, sugar, proteids and ash represent these different foods.

The Best Method for Modifying Cow's Milk.

The best and most scientific method of modifying cow's milk, and the method adopted by the best authorities, is that of Professor Rotch, of Boston. Of course it is impossible to carry out his exact method in private practice; however, in a slightly modified form, it can be used with great satisfaction in the home of any intelligent mother, whether she be rich or poor.

We must first know the composition of normal mother's milk at different periods of lactation, and then know the composition of average cow's milk. The only apparatuses necessary are a glass graduate, an ordinary teaspoon, and a plain sterilizer with the proper number of bottles. It is better to have a high-registering thermometer made for the purpose, but it is not absolutely necessary. The ingredients needed are ordinary good, fresh cow's milk which will deposit a fair quantity of cream on standing for four hours, plain granulated sugar (or, better, milk sugar), a bottle of lime water and a bottle of boiled water. With these we can approximate very nearly the proper proportions of the different ingredients. The cream supplies the fat, cream and milk both supply the proteids, and the lime water the alkali which brings the mixture to the proper reaction. Of course, the use of the sugar and water is apparent.

Treatment of the Fresh Milk.

When the fresh milk is first received in the early morning it should be strained through a freshly-boiled cloth into a clean basin of some kind, and then covered with another clean cloth. The milk should then be set on ice or in ice water for four hours. After this time there will be sufficient quantity of cream deposited for our purpose. From a quart of good milk thus treated you can usually skim off about eight ounces of eight per cent. cream (*i. e.*, eight per cent. fat). After taking off the cream you can prepare your formula. First dissolve sugar in the water, and then put in the other ingredients, and thoroughly mix. Then fill up as many bottles as you need feedings for the twenty-four hours, and stop them with clean cotton. Next put bottles in the rack of the sterilizer, and immerse in the basin of the sterilizer, so that the water is on a level with the milk in the bottles. Next set the basin on a stove or over a lamp of some kind, and apply heat. If you have a thermometer for the purpose, insert it in the basin of water, and when it registers 170° F., remove heat and reapply as necessary, so that the water remains between 167°-170° F. for twenty minutes. Then remove bottles and put on ice at once. If you have no thermometer, allow the basin to remain over the fire till the water is seen about to boil, then remove and cover with an ordinary thick towel, and let alone for twenty minutes, after which, put bottles on ice and feed warm. Warm the milk by setting bottle in warm water. (A simple apparatus for "sterilizing" milk, according to the above process, has been devised by Dr. Freeman, of New York city. It is a simple device, and can be used by any one. It is called Freeman's Pasteurizer.)

This process of heating milk will destroy all ordinary forms of bacteria, and milk thus heated is very little changed in taste, and is very digestible. Ordinarily, it is best for milk not to be sterilized or heated to 212° F. for any length of time, unless it is to be kept for several days, as the high degree of heat causes it to have an unpleasant taste, and to be more indigestible on account of the coagulation of the proteids which is supposed to begin when the temperature reaches 171° F.

It is not a difficult task to instruct an intelligent mother how to prepare the milk according to the formula you write her. Often it is hard to get the correct proportions at first for the child's digestive powers; but if we see it doesn't agree with the child, close attention to symptoms and character of its stools will tell you what is wrong. The ingredients hardest to regulate are the fat and proteids, so it is best to begin with a formula weak in fat and proteids, and gradually increase these ingredients to the proper per cent. as we see they are digested.

Most Infants Fed Too Often.

The quantity of food and the time of feeding are almost as important as the quality of food. Most infants are fed too often; one meal hasn't time for digestion before another is forced upon it, and soon there are fermentation and indigestion, and we wonder why the food doesn't agree.

It must also be borne in mind that an infant doesn't require the same quantity of fat in summer as in winter. The fat is not assimilated in very warm weather, and simply acts to disarrange digestion; so in the warm spring and summer months the milk should be given more diluted.

Sugar is a very important element of an infant's food; it remains at about a constant per cent. in mother's milk, and should be kept at this in one formula for modified milk. Do not forget that it is as much a food as fat or proteids, and is not used simply to *sweeten* the milk.

I once heard of a physician who said he had stopped using sugar in his milk for children, as he thought it fermented too easily, and that he was using *glycerin* to sweeten the milk. Milk alone should constitute an infant's food till it is about a year old, and during the early part of the second year, in addition to milk, such simple articles as well-cooked oat-meal and dry stale bread may be given once or twice a day; later on, simple broths or soups, with grease taken off, and a soft-boiled egg may be given. Fruits, such as the juice of an orange, baked apples, or soft peaches in season may be allowed towards the end of the second year; but never, under any circumstances, should such articles as candy, cakes, and promiscuous fruits be allowed, for they are the primary cause of illness that cause the death of hundreds of infants every year.

TREATMENT OF BURNS.—Burns in which the skin is blistered but not broken may be very satisfactorily treated by means of a thick paste of bicarbonate of sodium and water spread upon the parts. By means of osmosis the serum is abstracted from the blister as fast as it forms, so that the separated skin soon becomes adherent to the surface beneath, and in the course of a day or two the blister will disappear, and in its place will be found a flat surface covered with a thickened skin much resembling a callous. Great care should be taken to avoid breaking the skin, so that the serum beneath will not be infected. So long as an aseptic condition is maintained, suppuration will not take place, and a cure may be accomplished in a few days instead of requiring several weeks. The application of soda also affords prompt relief from pain. Ichthyol may be used in the same manner; it should be painted over the affected part and covered with a thin cloth or tissue paper. The application should be renewed, if necessary, several times daily.

TREATMENT OF GONORRHŒA WITH SILVER IRRIGATION.—Galewski (*Wien. med. Woch.*, No. 23, 1897) uses a solution of 1 in 1,000 to 1 in 2,000 silver nitrate applied by means of a soft catheter once or twice a day. If this causes much irritation a weaker solution is used at first. Only acute cases were treated, none being more than four days' duration. The author found that in twenty cases sixteen were cured in twelve days.

SOCIETY PROCEEDINGS

BRITISH MEDICAL ASSOCIATION

[*Continued from page 377*].

Proceedings of the Section on Public or State Medicine.

THURSDAY, SEPTEMBER 2.

The session convened at 10 o'clock, with the President, Dr. Lachapelle, presiding.

The first paper presented was

Observations on Pollution of Ground Air,

by Dr. James MacLoud, of Charlottetown, P. E. I. He described the drainage system of his city of 12,000 inhabitants, deprecated the idea that Charlottetown has no well-defined system of sewers, and that the arm of the sea upon which the city is built is polluted by sewage, poisoning their water to the imminent danger of public health. The paper was briefly discussed by Drs. Bryce and Oldright, of Toronto, the latter stating that soil pollution had occurred in this city, caused by a broken "main." He illustrated a case of this kind where a medical gentleman's health was so seriously impaired that he recovered damages from the city.

The next topic was considered by Dr. F. Montizambert (Superintendent of the Canadian Quarantine Service, Grosse Isle, Quebec),

On the Utility of Quarantines as Now Conducted.

The general consideration of infectious diseases in connection with the subject of this discussion divides itself naturally under two heads: The prevention of disease from without getting into the country, and the dealing with it once has entered in. A system of arresting disease at the coast and frontier entrances, and a system of preparedness in the interior communities. Neither of these is sufficient without the other. Coast quarantines and inland health organizations form the double line of sani-conditions for the spread of disease amongst such passengers to those obtaining in an infected vessel, possibly crowded with emigrants, during a passage of nearly three weeks from Asia, or one of more than a week from Europe, to Canada. In Great Britain the place of destination is presumably reached within the first day after landing; in Canada it may not be reached until after a week or more of continuous railroad traveling. In Great Britain it may be possible to isolate suspects in separate compartments of the divided railway carriages during the short journey from port to destination; in Cañada during the possible many days' travel in our large and undivided cars no such isolation would be practicable; but with the constant coming and going of passengers into and out of the cars at every station and cross-line, any infectious disease would be liable to be spread broadcast through the country. In Great Britain the inland sanitary organizations and the sanitary condition of the homes of the people are considerably nearer perfection than they are, as yet, in this country.

For such reasons as these Canada can not depend to the same extent as Great Britain upon inland "surveillance," and "observation" of suspects at quarantine must form part of our system of protection. Accordingly, in becoming a party to the Dresden Sanitary Convention, this country accepted its conclusions fully, and without the reservation made by Great Britain in her own case, that healthy persons landing from infected ships should not be detained.

In the second place, under the regulations in the United Kingdom no mail matter, except that by parcel post, is liable to detention or disinfection; in Canada disinfection of the mails is not forbidden, and is sometimes considered necessary. Notably is this the case, for instance, for the local mail arriving at Victoria from China. But little is known of the sanitary conditions in the interior of China, and that little is anything but reassuring. The disinfection of the mails from that country is, therefore, considered advisable.

In the third place the regulations of the Local Government Board for ports in the United Kingdom limit the term "infected" to infected with cholera, yellow fever or plague.

Under the Canadian regulations actual cases of any of the infectious diseases are removable at quarantine so as to prevent the importation of new cases, even of the minor diseases, to become fresh centers for the spread of infection throughout our country. And the arrival of all classes of infectious disease is notified inland from our coast quarantines. Under this head perhaps the most noteworthy difference between the two countries is with regard to smallpox. In the Canadian regulations smallpox is included amongst the graver forms of infectious disease, and there are, indeed, special regulations concerning it. According to the English regutary defense. The interior communities throughout the length and breadth of the land an interest, and a very close and vital interest, indeed, in the fittings and working of the quarantine service at the various ports of entry. But confidence in a quarantine system, however perfected, must never be allowed to lull us into a false sense of security to the neglect of striving ever more and more toward the sanitary improvement of the cities, villages and districts in which we dwell.

From the long period of incubation of some of the infectious diseases, and the relative shortness of the voyage from many ports outside the country, occasional cases of infectious disease in the stage of incubation, and the micro-organisms of disease lurking in unsuspected clothing or merchandise, may pass from time to time, in an invisible and unrecognizable stage and condition, the most efficient quarantine that is practically possible. This can not be entirely avoided without such routine detention of vessels and passengers at the ports of arrival, such routine disinfection of all clothing and merchandise from abroad, and such consequent interference with travel and traffic as would be altogether unjustifiable and impracticable. Quarantines must not be expected to do the impossible; nor must they be leant upon as an excuse for lessened effort inland. But, admitting this, they certainly may be depended upon for dealing with actual cases of infectious disease, with infected vessels and effects, and with those suspected of being infected. In this way they strain out and protect the country from a very large percentage indeed of the exotic disease which threatens it from time to time. And thus they do a great and invaluable work.

In the first place, healthy persons arriving at our ports in infected vessels may be held under "observation" at our quarantines during the accepted period of the incubation of the disease in question from the ascertained date of last possible exposure. In Great Britain, from her comparative smallness in area, the number of her ports, the extent of her shipping, the almost continuous influx of passengers from the Continent, the shortness and compactness of her railway systems, the completeness of her inland sanitary organizations, and the perfection to which the sanitary condition of the homes of our people has been brought, this precautionary "observation" at the port of arrival is replaced by "surveillance" at the place of destination. In Great Britain the ports are so numerous that to equip and maintain quarantines at them all would probably cost more than the average annual expense in money of letting in disease and fighting it inland; in Canada there are practically but four sea-gates of passenger entry from abroad, St. John, Halifax and the St. Lawrence on the Atlantic side, and the Straits of Fuca on the Pacific side. According to the English regulations, and the English usage, as reported to me, a vessel arriving at a port of the United Kingdom with smallpox on board is not considered an infected vessel at all. In Canada the protection of the people by vaccination is not sufficiently complete and general to justify us in excluding smallpox from our meaning of the term "infected" as applicable to vessels and persons arriving at our sea-ports.

With regard to our minor ports, and our land frontiers, we have regulations which can be fully amplified should an emergency so require. But with respect to the importation of disease from Europe, Asia, Central and South America, etc., via the United States and across the frontier, we put our main dependence upon their protection of themselves by the well-worked quarantine of our southern neighbor, such as those of Boston, New York, Portland and New Orleans, and their admirable national quarantine service.

Discussing Quarantine Systems.

Dr. J. A. Duncan, secretary of the Provincial Board of Health of British Columbia, in the discussion dwelt particularly upon the plan of preparing the ship and passengers in health at the starting point in China or elsewhere, and that quarantine stations of foreign countries should be thoroughly equipped. The recommendations he submitted would prevent delay at the strait of Juan de Fuca and other ports along the Pacific coast.

Dr. S. Monckton Copeman, of London, England, referred to the threatened cholera invasion in 1893 in England, and the plan in vogue to resist the invasion of the disease in his country by the efficiency of the medical men in the Public Health service.

Dr. A. R. Reynolds, Commissioner of Health, Chicago, pointed out the utility of the quarantine system that was practiced in New York City during the summer of 1893. The result was, when we were receiving people and guests from the world over, not a single case of cholera developed in Chicago during the World's Fair.

Dr. Harvey Littlejohn, of Edinburgh, thought there was no practical difference in the quarantine system of the countries, either in the United States, Great Britain or Canada. Whatever difference or system adopted in the United States was accounted for by circumstances arising at the time such system is in effect.

Dr. Felix Formento, of New Orleans, La., spoke of the State quarantine that is in vogue in the State of Louisiana. He advocated that in some States they are very well able to protect themselves. He also argued that there is much to be said pro and con in the matter of the United States Government taking charge of State sanitation. In New Orleans, yellow fever is constantly threatening us, and we must protect ourselves from foreign invasion of that disease. Since 1878, however, we have had no yellow fever in the city of New Orleans except one or two cases in 1879, and possibly one or two cases in 1882 and 1883. Maritime sanitation is the term that should be used when the Federal Government takes hold of this matter. We have gradually modified the system of detention of disinfection of a ship, so that three days' observation is the minimum limit of detention of passengers. This will protect public health and commerce, and in this we have been successful. This is American sanitation.

Dr. Wolfred Nelson, of New York.—Constant vigilance is necessary in the South for yellow fever. On the Isthmus of Panama the distribution of yellow fever occurs continually, and if it were not for the magnificent quarantine system in some of the Southern cities, the South would be swept by it.

Some Alleged Dangers of Vaccination and Their Prevention.

was read by Dr. S. Monckton Copeman, Medical Inspector to the Local Government Board, London, England.

The writer maintained that the main practical danger arose from the uncleanly habits of a patient (vaccine). Microbes could be excluded by the use of glycerinized lymph, although the vaccinator should use precautions in having his instruments and hands clean. If the elementary principles of cleanliness are carried out by the operator and the quality of the lymph product pure, no danger from the operation will ensue. The diseases that have been known to occur, if these precautions are not observed, are erysipelas, abscess and septicæmia. The transmission of syphilis and leprosy can not be gainsaid. Septic inoculation may be accomplished by the instrument or hand. If erysipelas should develop, it will arise within three days of the operation. Vaccinia occurs in a certain number of cases. Comparing the percentage of deaths due to chloroform, ether and anæsthesia to those due to vaccination, the preponderance of deaths attributable to the former is greater than could be attributable to vaccination, and yet we would not be without anæsthesia. In England fifty deaths occur every year attributable in one way or another to vaccination. Some writers deprecate the inoculation of calf lymph, but a person need not be required to submit to vaccination unless it is procured from the calf. The writer's method of procuring the lymph from the calf and preserving it consists in the well-known method of preparing it with 50 per cent. of chemically pure glycerin and sterilized water. This will insure the absolute extinction of all germs and render it free from pathogenic bacteria of erysipelas, tuberculosis, etc. Scientific observation and official recognition is in favor of calf lymph.

Dr. A. R. Reynolds, Chicago.—The use of recent glycerinized lymph bids fair to do away with the fear of vaccination, as it remains pure for sixty days, and is growing in favor every year.

Dr. Wyatt Johnson, of Montreal, contributed "Some Notes on Room Disinfection by Formaldehyde," or, "Experiments in Household Disinfection." The paper was read by Dr. Littlejohn in the absence of the author. The desiderata obtained from its use are freedom of injury to the goods treated. Its penetration is more powerful than the fumes of sulphur. The apparatus and its use was shown by Dr. D. D. MacTaggart, of Montreal. It consisted of an air-tight tent which is used to place the goods in, and the condensed formalin vapor escapes under a pressure of fifteen pounds.

The Relationship of the Health Officer to the Registration and Certification of Deaths

was read by J. R. Kaye, M. D. He advocated reform. A portion of his paper was historic. In 1837, in London, the act was decreed that certification of death be required, and the Registration act and great act in London, 1875, enjoins upon medical men to certify, to the best of their ability, the cause of death, and specifically so, and not to use ambiguous terms, and to do away with significant symptoms as a cause of death, such as jaundice, dropsy, hæmorrhage, etc.

Dr. P. H. Bryce.—In Ontario, the act of two years ago requires that the householder and attending physician certify and both be satisfied as to the cause of death. This makes the correctness more accurate and illegality less liable to occur.

Dr. Thomas Carr, of Essex, Eng., and the author closed the discussion by stating that registration in England is completely carried out, and that all returns should be made to the Health Officer for transmission to the registrar general.

The subjoined list of papers were read by title: "The Sanitation of Militia Encampment," by Dr. W. Henry Egle, of Harrisburg, Pa.; "Tuberculosis in Animals in Relation to Human Tuberculosis," by Dr. G. de Schweinitz, Director of the Biochemic Laboratory, Department of Agriculture, Washington, D. C.; "Consumption in Australia," by Lane Mullen, M.D., of Sydney, Australia; "Notes on Bermuda as a Winter Resort," by Eldon Harvey, M.R.C.S.; "A Few Observations on Bermuda," by Surgeon-Captain H. A. Cummins.

FRIDAY, SEPTEMBER 3.

The Section was called to order at 10 A. M., with President Lachapelle in the chair.

The first paper,

On the Different Processes Recommended for the Treatment of Sewage,

was prepared by Mr. George Janin, C.E. (formerly of the Corps des Pontes et Chaussees of France), Montreal, and was read by Dr. C. De Martigny.

The author described the various attempts which had been made in other countries to purify sewage, with the indifferent results attending the same. The soil is the instrument of purification, although air and water may move the sewage, and by so doing a phenomenon of slow combustion goes on and is the best method of purifying sewage. Mr. Janin is an enthusiastic exponent of purification through filtration or irrigation in this method of permeable soil. The effects of this in France and Germany were set forth as abundantly successful, both from the hygienic and economic points of view. Some of the chief features referred to were that the town, city or municipality secures a certain amount of land into which the sewage is poured by means by means of ditches. The porous nature of the soil permits percolation, while simultaneously the chemic properties of the earth render the sewage matter innocuous in its passage, the result being that the effluent, when it reaches the stream or river into which it is to finally empty itself, is free from organic impurity and does not in the slightest degree contaminate the water with which it mingles. As for the economic results it was pointed out that in France and Germany great profits had accrued from land so treated, the crops being nearly double and the greatest eagerness being displayed to acquire purification on land, as it is called, in the neighborhood of large cities. If there had been any failures in the instances in which the system of filtration of irrigation had been employed, it was not owing to the principle involved in the system itself, but to an improper application of those principles. The system is approved by all the great sanitarians of both France, Germany and England, and he instanced the case of England particularly, because in that densely populated country, with its large cities and the comparative smallness of its rivers, it had been found necessary to pass a "Rivers Pollution Act," and several systems had been tried to comply with the terms of that act, soil purification being finally accepted by those in authority as the best and indeed the only system promising success.

Dr. Harvey Littlejohn, of Edinburgh, thoroughly agreed with Mr. Janin that the system which he had described was the only one from which complete success could be expected. Sewage has been so treated in England and Scotland during the last ten years. Precipitation by lime was adopted many years ago, although no known precipitation is reliable. No doubt the urgency of this matter is not so great in Canada and in the United States as it was in England, but still, if he might advise, he would say that now is the time to begin to make provision for the purification of their sewage in large centers of population, while their beautiful rivers and lakes had not become as the rivers and lakes in older countries had been allowed to become, simply sewers, past cure or hope. The passing of the "Rivers Pollution Act" in England made it incumbent upon local authorities to exert themselves to devise a scheme for sewage purification. Indeed, the local government board had brought pressure to bear upon the municipal authorities with the result that several experiments had been tried, such as precipitation, but that which had given most satisfaction was the soil irrigation. The difficulty, however, in England was that land was enormously dear, so dear, indeed, as to prelude the possibility of its being purchased in many instances, certainly in the case of land situated close to large centers of population, by the municipal authorities. Land is still comparatively cheap in this country, and he thought now was the opportunity to provide for the future.

Discussion of the Sewage Question.

Dr. Wm. Oldright mentioned that filtration by irrigation has been successfully introduced in London, Ont., and that crops raised there were very valuable because the irrigation was the best he had ever seen.

Dr. P. H. Brice added his testimony to this fact, also, viz., that the action of the asylum authorities at London, Ont., where the experiment of sewer purification by the soil had been to such an advantage that potatoes raised upon the land thus irrigated averaged a value of $300 per acre, wholesale price. To conduct a sewage farm with success, the sand should be sharp and the sewage poured on; the running of the water would not be interfered with by our winter climate.

Dr. De Martigny explained that in several of the towns in northern France and Germany the experiment had been successfully carried out in the winter, when the frost was three feet deep in the ground, while the crops resulting from the land thus used were wonderful in their increase.

Dr. C. O. Probst.—In Ohio broad irrigation is not used. There is not a river in the State that has pure water, and we will have to face this question. Alum treatment will precipitate the sewage, and by that means we can purify the water, but the expense attending this is great. He then instanced the cities in that State where this had been tried.

Dr. J. C. Shrader, of Iowa City, said that in his State it is a very difficult thing to purify the streams, or prevent the contamination of the waters. So far as the Mississippi and Missouri Rivers are concerned, it has never been attempted.

Dr. H. J. Herrick, of Cleveland, Ohio.—This question is occupying the attention of the world. Cleveland, with her 400,000 inhabitants, drinking the water from Lake Erie, suffers at times from the lake water becoming bad. I believe that the system suggested by the author of the paper is the best one. Nature takes care of the sewage by oxidization, sedimentation and aeration. Then the disinfection takes place in the soil below. We should secure a large surface to do this.

Dr. Woods Hutchinson, of Buffalo, thinks that admission of air to soil is a desideratum necessary, and that the micro-organisms should have credit for a portion of the work they perform, for were it not for the purifying action of these bacilli in the soil this experiment or irrigation would be a failure resulting in the poisoning of the soil and the contamination of the district with disease germs.

Dr. Alexander Johnston.—The present process consisting of precipitation of sewage by lime and alum has been discarded; that is, lime has been discarded and final filtration is made through a sand base. The difficulty really consists in irregular discharges of sewage, and its treatment by chemic processes cannot be correctly done.

The next paper was on

Results of Mechanical Filtration Plants in Ontario,

by Dr. J. J. Mackenzie (Bacteriologist, Provincial Board of Health of Ontario). The author referred particularly to the methods in vogue at St.

Thomas, Ont., where the water was purified to the extent of 96 to 99 per cent.

Dr. C. O. Probst instanced the experiments by the dual mechanical filter that had been tried at Lorain, Ohio, situated on Lake Erie, where during the first week 2.58 grains of alum to the gallon of water was used and showed such bacterial deficiency that the water was 98.9 per cent. pure. During the second week 2.50 grains of alum were used and the water was 98.4 per cent. pure. In the third week, when 2.27 grains were used, the water was 97.5 per cent.; in the fourth week, when 1.7 grains were used, the water decreased to 90.9 per cent., and the fifth week with 0.94 grains the water decreased to 86.3 per cent. It would cost $5,000 per year for alum alone in that place to procure pure water.

The succeeding paper, by Dr. F. F. Westbrook, Bacteriologist, State Board of Health of Minnesota, was entitled:

A Preliminary Communication on the Bacillus of Epidemics of Diphtheria.

The author cited one case where seventeen examinations of the secretions of the throat in one child had been made, covering a period of 181 days, in which fifteen of the examinations showed the typical bacillus diphtheriæ. Antitoxin and corrosive sublimate solution 1 to 1,000, and even 1 to 250, failed to remove all the bacilli diphtheriæ in this case. The paper dealt largely in statistics regarding the typical and atypical variety of the bacilli and how children may be reinfected.

The next paper, by Dr. E. B. Shuttleworth, Bacteriologist to the City Board of Health of Toronto, was

Observations on the Etiology of Diphtheria.

In 1,000 cases tabulated by the author he showed that in Toronto the throat and tonsils are prone to the disease.

The following papers completed the programme: "The Future of Public Health, Judged by a Quarter of a Century's Experience of its Past," by Dr. C. N. Hewitt, of Red Wing, Minn.; "Paper on Yellow Fever," by Dr. Wolfred Nelson, of New York.

ABSTRACTS OF PROCEEDINGS.

SUMMARY OF TREATMENT OF SYPHILIS.

Dr. John V. Shoemaker, professor of skin and venereal diseases in the Medico-Chirurgical Hospital, Philadelphia, and well known as an author, took a prominent part in the discussion on syphilis at the Toronto meeting of the British Medical Association. His remarks summarize the therapeutics of syphilis so admirably that we quote them below in full:

"From beginning to end syphilis is essentially one and the same pathological process. The initial lesion is more than a local sore. It is the first outward manifestation of a constitutional infectious disease. I am, therefore, firm in the belief that a patient should be placed upon constitutional treatment as soon as the diagnosis of chancre is made. In most cases the physical characteristics of the sore enable us to make a positive diagnosis. I regard local treatment, in the primary as in the later stages of syphilis, as of less importance than constitutional management. Effective but not too severe cauterization will hasten repair when considerable ulceration attends the lesion. In many cases black wash is an excellent application. A dusting powder is preferable in most instances. Calomel, acetanilide, bismuth subnitrate, bismuth subiodide, aristol, europhen, iodoform, iodol and salol are substances which may be used with good result. Excision of the chancre is, according to my belief, unphilosophical, and the practice has been entirely without success. In non-ulcerated chancre no local measures are required. Whatever form the initial sclerosis assumes, it heals more readily and more rapidly when systematic treatment is adopted. We possess remedies for syphilis which approach specific power. If we have reason to believe that we are dealing with syphilis why wait until additional manifestations supervene? The early adoption of general treatment attenuates the virus of the disease, alleviates its symptoms, and may almost be described as prophylactic. A strong argument in favor of early constitutional treatment is the fact that visceral lesions occur in secondary syphilis far oftener than is generally realized. As regards constitutional treatment, mercury is our main dependence. It is often a question as to the manner in which the metal should be introduced into the system or the preparation which should be administered. A mere routine treatment is particularly reprehensible in syphilis. Fumigation involves a troublesome arrangement of apparatus, and draws attention to the patient—a circumstance which, in private practice, we must avoid. Inunction is an uncleanly method. In both fumigation and inunction we are unable to regulate the quantity of mineral absorbed, and these procedures are, consequently, more apt to cause ptyalism than when the drug is given by the mouth or thrown beneath the skin. In most cases the ordinary mode of administration by the mouth will be preferred by the patient, and is satisfactory to the physician. The most eligible preparations are blue mass, calomel, gray powder, the green iodide or biniodide, and the tannate of mercury. The numerous forms more lately recommended possess no conspicuous advantages over the older salts. Calomel is prompt and efficient, but is too apt to excite salivation. As I agree with Mr. Jonathan Hutchinson regarding the importance of minimizing the virulence of the disease, so I also have a favorable opinion of the value of hydrargyrum cum creta, and often prescribe it, especially where there is a notable disorder of the secretions. Corrosive sublimate is reliable, and is best given in solution. It has the advantage of combining well with iron. The biniodide can be effectively given with potassium iodide, as in the syrup of Gibert, and is particularly available in late secondary and in tertiary syphilis. My usual preference in cases seen early is the green iodide of mercury. In vigorous subjects it is serviceably conjoined with small doses (gr. $\frac{1}{48}=\frac{1}{24}$) of tartar emetic. If it occasions griping and diarrhœa a fractional quantity (gr. $\frac{1}{12}=\frac{1}{8}=\frac{1}{4}$) of powdered opium should be added. After three or four weeks the antimonial may be discontinued. The mercurial is gradually increased until it gives some evidence of its physiological effects. It is then either gradually reduced or at once discontinued, and a simple tonic given in its place. The tonic remedies which I employ during this intermission are iron, strychnine, hoang-nan, cod liver oil, hydrastis, or coptis trifolia.

Several of these may be given in conjunction. The mercury is then resumed for three or four months, stopped or alternated with a tonic, administered again for several months. At the end of a year, if manifestations of disease are absent, the intermissions are lengthened. By the end of the second year, under this mode of management, most cases are cured. The patient's habits should conform to dietetic and hygienic regulations. Tobacco favors the production and continuance of oral lesions. Alcohol is detrimental unless given in medicinal amounts to debilitated subjects or those habituated to its use. If such a plan were faithfully followed, the percentage of undoubted cures would be much increased. The difficulty is that many patients, as soon as the tangible evidence is suppressed, abandon medicine and resume their reckless courses.

A Case Rapidly Cured.

"How rapid and efficient treatment may be under favorable circumstances is shown by the case of a young woman in whom the mode of infection could not be discovered. After suffering for a week or more from excruciating headache, attended toward the last with some fever and delirium, a plentiful macular syphilide appeared upon all parts of the body, including the face. There was a little thinning of the hair. In two weeks' time, under the influence of the green iodide of mercury, the spots were scarcely discernible. In another week every trace had disappeared, the complexion was pure, the skin rosy and soft. More than four years have elapsed, and there has been no return.

"A much more difficult case, because it had reached an advanced stage without its nature having been recognized, is that of a young man who now presents only certain trivial lesions. When I first saw him he was a hideous spectacle. His face was covered with large tubercular syphilides. The disease had been in existence for more than two years. In that space of time his skin had never been free from lesions; he had ulcerated sore throat, osteocopic pains, and an inflamed eye. He was steadily growing worse, was anæmic, weak and emaciated. He was first placed upon a mixture containing tincture of coptis trifolia and tincture of xanthoxylum. Subsequently he was given tincture of nux vomica in large doses with fluid extract of hydrastis canadensis. The nux vomica was then discontinued, and the doses of hydrastis increased. The patient gained strength under these medicaments, and his blood improved in quality. He was then given mercury with chalk in 3 gr. doses thrice daily, and, with returning flesh and vigor, the last drug was replaced by potassium iodide. His general condition is now good, he feels well, and the only evidences of active disease are a small crusted lesion on the upper border of the right ear, and a similar one just within the left nostril. There are a number of small and medium-sized scars upon the face, but they are not very noticeable to a casual glance. Larger cicatrices exist upon the trunk and limbs. Treatment is still continued.

Injections of Corrosive Sublimate Advised.

"For a rapid impression upon the disease I much prefer subcutaneous injections to fumigation or inunction. A soluble salt is, I think, equally efficient and less dangerous than an insoluble preparation. Abscesses and other severe manifestations are liable to follow the injection of calomel. The corrosive sublimate is my choice. In corpulent subjects I inject the solution into the subcutaneous tissue, in thin persons into the substance of a muscle. The solution which I use contains 4 grs. to an ounce of distilled water, and the quantity employed is 5 minims daily, augmenting the dose by a minim every second or third day until improvement occurs or the physiological effect of the drug appears. Lusty patients will safely bear larger doses given at longer intervals.

"As syphilis is curable it is no permanent bar to marriage. If a patient can be kept under the constant surveillance which I have outlined he may marry in a year after all syphilitic manifestations have ceased."

THE TREATMENT OF PUERPERAL SEPTIC DISEASES.

The medical aspect of this subject was presented in a paper by Dr. Charles G. Jewett, of Brooklyn, before a recent meeting of the New York Academy of Medicine. This class of affections, he said, was strictly among the preventable diseases, and the accoucheur was usually responsible for their occurrence. Prophylaxis must begin many weeks before the time of labor, and among the predisposing causes to which he referred were anemia, syphilis, vaginal disease, diarrhœa, constipation and auto-intoxication from the retention of excrementitious products in the system. It was the opprobrium of the profession that, notwithstanding all the advances which have been made in the last few years, the percentage of deaths among practitioners in general still remained undiminished.

He condemned the use of the douche after parturition, except in rare instances, as interfering with the normal processes in which the parts were protected by the natural secretions. In order to treat any case intelligently an accurate diagnosis was required, and he advised a vaginal examination by the speculum. Any lacerations could then be packed, or otherwise treated, and if there were foul discharges a vaginal injection with peroxide of hydrogen or Labarracque's solution (1 to 10) should be made by the physician himself. No interference should be made with the uterine cavity unless it were positively known that this was affected. In exploring the cavity it was difficult to render the hand aseptic, and he thought the curette preferable, though curettage should never be lightly undertaken. For scraping the cornua, a special form of instrument was required. In the absence of *debris* in the uterus, the use of the curette was contraindicated. Under these circumstances the cavity might be painted with iodine or packed with an iodoform dressing. Intrauterine irrigation was permissible only so long as it was followed by a reduction of the temperature. The injection of steam at a temperature of 100° C. had been used with favorable results in France.

In the systemic treatment, eliminants and tonics, such as strychnia and quinine (not in large antipyretic doses), were called for. Also concentrated liquid nourishment and, in many cases, alcoholic stimulants in large quantities. The free use of water internally and externally in the form of cold bathing or sponging was often of great service. Plenty of fresh air was essential, and the intravenous injection of saline solutions had been employed with success. Ergot was thought to be useful in limiting the diffusion of the poison. The antitoxic serum treatment was as yet under trial, and no very definite conclusions could be made in regard to it at the present time. He had employed it in six cases, but in one only had the results appeared to be satisfactory. Nuclein he had used in three cases, but with no result. Dr. Jewett's general conclusion was that, while of late years much had been added to our knowledge of prophylaxis, but little progress had been made in the medical treatment of puerperal sepsis.

Surgical Aspect of Puerperal Septicaemia.

Dr. Egbert H. Grandin read a paper presenting the surgical aspect of the subject. It was very important, he thought, to determine in any case under observation whether we were dealing with sapræmia or septicæmia. These conditions are very different, although, if allowed to go undisturbed, the former was apt to result in the latter. Curetting was liable to do injury, unless practised with great care, by breaking down the protecting bed of leucocytes which nature provided and thus causing a further extension of the trouble. We had, then, a putrid and a septic endometritis. The best means of diagnosis was the accoucheur's fingers. If any remains were found in the uterus, the curette was to be employed, but if there was nothing to remove, curetting should not be resorted to. He had found it advantageous to use sterile gauze to keep the cavity open. It should be removed in about thirty hours. Iodoform gauze was attended with considerable danger, and he had rejected it. As to the use of the curette, the dull instrument was quite sufficient to remove necrotic tissue, but either the sharp or the dull curette was dangerous in inexperienced hands.

In septic forms of endometritis, he thought the less interference the better, as over-action was apt to cause a diffusion of the poison into the tubes, ovaries and peritoneum. His own practice was to employ, after one injection, sterile gauze soaked in absolute alcohol. As to the matter of operation, it was a question not so much *how* as *when*. All inflammatory processes were modified by the puerperal condition, and the great aim should be to act before systemic infection was deep. When this was the case operation availed but little. In puerperal surgery he was the best judge who had for years made a study of the process of parturition, and not the general surgeon. Here, plastic peritonitis and cellulitis was apt to become septic, but in certain cases it was advisable to anæsthetize the patient and make an incision. As a rule, there were multiple septic foci, and the question of the justifiability of hysterectomy was as yet in an unsettled state. In this connection he mentioned the case of a woman, with multiple abscesses of the uterus, who recovered without operation and afterwards gave birth to a child.

General septic peritonitis was the *bête noir* of the surgeon, and particularly so when it was associated with the puerperal state. The septic condition rapidly affected the nervous centers and almost always proved fatal. When the peritonitis was plastic the prognosis was less grave. It was in cases of the latter kind that opium proved of so much service. As long as a part of the peritoneum remained unaffected, however, there was a chance of success.

Results with the Streptococcus Serum Treatment.

Dr. W. A. N. Dorland, of Philadelphia, spoke of the use of the serum treatment in his own city, and said that thus far it had not proved very satisfactory. At a meeting held some little time ago twelve cases were reported by various physicians, and in six of them the patients died. In four cases the treatment seemed to be successful, and in the other two the matter was doubtful. In the experience of Philadelphia physicians since then about one-half of the cases had also died. From this 50 per cent. mortality it might perhaps be inferred that the treatment was positively harmful; but, on the other hand, it was no doubt true that the cases in which it was employed were of more than ordinary severity. Personally, he should not be inclined to resort to it unless an exact bacteriological examination showed the presence of the streptococcus. Even if there was pus in the lochia, it did not necessarily follow that it was in the system at large.

There were two points on which he wished to lay stress: (1) The importance of resorting to anæsthesia in making a diagnosis, and (2) the fact that this class of patients was much more apt to recover with intact organs than patients in the non-puerperal state. Therefore, great care should be observed as to the exsection of organs. The absorption of products was very remarkable, even in cases where there were the most extensive exudates. Hence, a judicious conservation was all-important, and even though both tubes and ovaries could not be saved by drainage, he thought drainage better than excision. Another point was the importance of limiting the time of intrauterine injections or irrigation. If continued for more than one or two days, they did more harm than good. He believed intravenous injections of saline solutions to be of great service.

Dr. P. F. Mundé said that he had been much gratified by the conservative stand taken by the previous speakers as regards surgical interference. He had always been satisfied to keep the patient alive by combating high temperature and maintaining nutrition in every possible way, until the system could throw off the poison. Only within the last year had there appeared a ray of hope for a more successful treatment. He had recently treated two cases which he thought would certainly prove fatal with antitoxic serum, and both recovered. Whether this result was positively due to the serum he could not say; but at all events the gratifying fact remained that the patients got well. What we wanted now was more scientific reports regarding this subject. In regard to surgical interference, he was glad to hear it said that the curette was not to be used unless there was something to be removed by it. When there was no septic product to be removed he thought it was a mistake to employ the instrument, no matter how thick the inflamed endometrium, as it only served to open new channels for septic infection. Wherever pus pointed, it should be evacuated; but he did not believe in removing the uterus when the patient was in such bad condition that the operation was almost sure to prove fatal. In puerperal peritonitis he believed in incisions. It was true that the results were usually bad, but still a few patients recovered.

Dr. H. N. Vineberg said there was a class of cases in which the patient did well for five or six days, when there would be a rise of temperature. The only local condition discoverable might be an enlarged uterus, and on exploration it would be found that a portion of the placenta had been left behind and was decomposing. This he was in the habit of removing with the curette, and he then injected the cavity with plain water or a two per cent. solution of carbolic acid. He mentioned one case in which this treatment had not proved successful, and in which he was finally obliged to resort to hysterectomy, with the result of saving the patient's life.

The Advantages of Ergot.

Dr. R. A. Murray spoke first of the advantage of a full dose of ergot after the delivery of the child.

If there was the slightest rise of temperature an examination should be made with the finger, and we could then use the curette with advantage, if this was necessary. Afterwards we could apply iodine, alcohol or other agent to close the mouths of the veins by coagula. For the reduction of temperature he thought very highly of veratrum veride, as used by Dr. Fordyce Barker and others. It was best given in small doses, frequently repeated, and in association with whiskey, which was the natural antidote to it. As to diffuse peritonitis, he had yet to see the case, at the autopsy, where he felt that an operation would have done any good. In localized peritonitis it was his practice to drain and then operate afterwards if the patient survived.

Two speakers having referred to the frequency of malaria as a complication of the puerperal state which called for large doses of quinine, Dr. S. Marx, the chairman of the section, took up the question, "Why is the antitoxic treatment successful in surgical sepis, and not in puerperal?" He believed the reason was because in the latter the septic condition was complicated by unknown factors incidental to the puerperal state. He had employed the serum treatment in five cases, in four of which a careful bacterial examination was made, and his experience had convinced him that the infection present was of such a nature that we had to deal not only with the streptococcus, but with some other element as yet undetermined. All the five cases proved fatal. He was of the opinion that the many favorable cases reported from abroad were in reality cases of sapræmia, which would have recovered under almost any treatment.

ON THE NON-SURGICAL TREATMENT OF BOILS, CARBUNCLES, AND FELONS.*

By L. DUNCAN BULKLEY, A.M., M.D.,
Physician to the New York Skin and Cancer Hospital; Consulting Physician to the New York Hospital, etc.

The knife has long been associated in the minds both of the profession and laity with the treatment of boils, carbuncles, and felons, and incision is the recognized method of treatment on all sides. Poultices are also commonly employed, although perhaps somewhat less frequently than formerly. The object of the present paper is to detail the treatment of the writer, who for ten years and more has avoided both the poultice and the knife, and in a large series of cases has had results which seem to warrant bringing the matter forward. I am aware that the views advocated will be open to criticism, but having for a long time followed the plan of treatment to be outlined, I feel confident that others will observe the same results if all the details are carefully and intelligently carried out.

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* Read at the Montreal Meeting of the British Medical Association.

It is needless to discuss in this assembly the modern views in regard to the causes of the formation of pus. It will be granted by all, I think, that the pyogenic organisms, principally the staphylococci (aureus and albus), are essential features of suppuration. But opinions are beginning to divide in regard to the true pathogenesis of many conditions which were regarded as understood some years ago. It is now recognized that the micro-organisms of disease are almost universally present, and those associated with the production of pus are spoken of by one writer as "normally present on the skin" even when there is no suppurative disease present.

Attention is thus being turned again to the underlying causes which predispose or prepare the tissues for the operation of the pyogenic elements. Bouchard* puts it so strongly that I cannot forbear quoting:

"The physician," says he, "ought not to allow himself to be absorbed alone in the search after a microbe. He ought to occupy himself with the infectious agent; but he ought also to retain a good deal of his anxiety for the study and research of circumstances which disarm the organism against the invasion of that agent. When the physician shall be in possession of this double knowledge—that many diseases are produced by microbes, and that these can only act by means of a deterioration of the health resulting from various pathogenic processes—he will recognize that the new discoveries contain nothing subversive, and that the lessons taught by ancient medical observations are not compromised; he will know that the part he has to play is still the same to-day as it was twenty years ago, and that, while seeking the means of combating microbes, he ought to, and he always will, be obliged to sustain the forces of the organism and make good its defense, inspiring himself constantly with this truth: namely, before every illness there is a disturbance in life—for nutrition is life."

I should like to quote much more from this close observer and interesting writer, for it follows along so well with what I have felt and taught for many years, but must hasten to the practical matters under consideration.

Granted the pyogenous powers of micro-organisms, my position is that their powers are temporary, and limited by their own nature and the condition of the tissues in which they are found. Witness the different results attending superficial wounds in different individuals and also in the same individual at different times.

In some persons a scratch or bruise will readily take on suppurative action, while in others it tends to heal in the kindest manner possible, with little or no pus. The same is seen in the same patient at different times, and there is certainly some measure of truth in the common remark that "one's blood must be in a bad condition," because of the occurrence of suppurative areas with slight injury. I am confident that in my own person there is a constant difference in this regard from time to time. The same may be observed constantly in practice in connection with eczema and many skin lesions. Thus, although the pus bacilli are undoubtedly everywhere present, and at all times ready to lodge and do their work if the soil is proper, yet in comparatively few instances is suppuration set up. This is only in accordance with what is continually observed in the prodigality of Nature, where of the masses of pollen produced only an exceedingly small proportion ever fructifies; and of the millions of seeds developed, relatively few reproduce the species, and these only when the soil and other conditions are favorable.

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* Lectures on Auto-intoxication in Disease, p. 9, Philadelphia, 1896.

I may be pardoned for thus dwelling on what is tacitly admitted on all sides, perhaps by every one theoretically, for practically it seems to be forgotten or overlooked by many in the treatment of the conditions which form the subject of this paper. While it is continually granted that attention should be paid to the general condition of patients with these affections, I find that as a matter of fact very little is generally done. There is commonly so much regard given to the local trouble that there is not the careful investigation of the general condition and direction of the patient's life which will lead to the raising of the vital forces above the pus-producing stage. The yielding of one or more points to the attack of the pus parasite too often attracts attention from the weakened system and debilitated tissues, which may allow of many more successful attacks, as commonly happens in the case of boils.

My first point, then, is to urge that the occurrence of these suppurative processes should always and more forcibly be regarded as evidences of faulty metabolism, and a more serious search be made to discover and rectify what is wrong. For many years the occurrence of boils has been more or less connected in the professional mind with the presence of glycosuria, but in my experience this latter is relatively seldom found, certainly not in a marked degree, although not infrequently other disturbances of liver or kidney action may be discovered to be thus connected.

Boils and Carbuncles a Certain Sign of Disease.

Patients with boils, carbuncles, and felons are never in perfect health, although it is sometimes difficult to discover exactly on what particular departure from health the condition depends; patient investigation, however, will generally afford the line upon which successful treatment will rest. Iron is most commonly needed, but quite as often there will be digestive and assimilative difficulties also to be overcome. Sometimes the cause lies only in overwork or worry, often in dissipation, though of a relatively harmless kind, involving late hours and irregular eating. I cannot help dwelling as strongly as possible on this constitutional aspect of the question, for in this I find myself at variance with much that is taught even in the best modern text-books. In them this aspect appears to be regarded apparently as of relatively minor importance compared to the local treatment, whereas I regard it as of the first importance, as compared to the relatively simple local treatment about to be described, which I have found thoroughly satisfactory.

The combination of iron which I have most commonly used in these affections is one which is known to us as Startin's mixture, somewhat according to the following formula: ℞ Ferri sulphatis ʒ j; magnesiæ sulphatis ʒ vj; acidi sulphurici diluti ʒ iv; syrupi zinziberis ʒ iv; aq. ad ℥ iij; M. Sig. One teaspoonful in water, through a tube, after meals. Unless there is some counter-indication, I generally begin treatment also with a good mercurial purge: ℞ Massæ hydrargyri, extracti colocynth. co. gr. x; pulv. ipecac. gr. ij; M. Div. in. pil. no. iv. Take two at night and two on the second night after. These four pills are generally repeated at the end of a week, and perhaps in other successive weeks.

Sulphide of calcium, if a perfectly good and fresh article and properly used, has in my experience a very decided controlling effect over the process of suppuration. I always give it in gelatine-coated pills, which I test myself, for occasionally the drug will be found quite ineffective from having changed to the sulphate of lime or gypsum. To be efficient it should be given freely, $\frac{1}{4}$ gr., every two hours, say, eight or ten doses in the day; this in connection with the iron tonic.

With these measures and a most careful attention to the diet and mode of life the tendency to the suppurative process may generally be quickly overcome, as I have observed almost daily for many years.

Local Treatment.

The local treatment of the diseases under consideration which I have found very satisfactory, differs materially from that commonly laid down, but can be briefly described. We will consider each affection separately.

1. Furunculi.—The objects aimed at by the treatment are, first, soothing and protecting an inflamed area; secondly, exclusion of air; and, thirdly, a slight antiseptic action. For this purpose a moderately thick layer of absorbent cotton is taken, several times the size of the inflamed surface; for a medium-sized boil a piece 1 by 2 inches, with the fibers running the long way. Upon the center of the cotton a considerable mass of the following ointment is spread by means of a spatula, and this is then laid over the boil, and held in place by strips of adhesive plaster across the ends, but not passing over the boil. The ointment referred to is generally composed about as follows: ℞ Acidi carbolici gr. v-x; ext. ergotæ fld. ʒ j=ʒ ij; pulv. amyli ʒ ij; zinci oxidi ʒ ij; unguent. aquæ rosæ ℥ j M. Ft. unguent. The relief often given by this dressing is very marked; the ointment soothes and protects the irritated surface, while the layers of cotton take up any outside friction. If comfortable, and unless disturbed, this dressing remains untouched twelve or more hours, when it is removed and a freshly spread piece immediately reapplied. If there has been any discharge the surface may be very gently cleansed with absorbent cotton, but I do not allow any squeezing. In many instances with proper internal and general treatment the boil aborts, and subsides without discharging; when this does not happen it ruptures spontaneously in a relatively short time, and I practically never find it necessary to incise it. This treatment I use in all stages of boils, keeping the ointment on until the boil is quite healed. If other boils form, I direct it to be applied early, and by this means they are frequently aborted. I wish I could express in a measure some of the delight expressed by patients when thus dressed in the comfort and relief obtained, as compared with the sensations and results from

other treatment which they had previously had. We should, I think, seek for the júcunde in our treatment, as well as the cito and tuto, and from no small experience I can say that this treatment acts quite as quickly and surely as it does pleasantly.

2. Carbuncles.—As a carbuncle is in reality but a large boil, or a conglomeration of boils (with, of course, certain anatomical differences), the local treatment with me has been much the same as that just described. Both early and late in the disease I have put on an ointment like the above, thickly spread on cotton and fastened at the ends of the strip with strips of adhesive plaster. Not only on the back of the neck, but also on the face and elsewhere, this dressing proves most comfortable and serviceable, and I have not had occasion to incise a carbuncle since November, 1882, nearly fifteen years ago. The patient died from this and other complications, but there has not been a single case with such result in my practice since. I have applied this treatment to some large and formidable carbuncles, and have always, thus far, found that the pus would find exit rapidly enough, and the healing progress satisfactorily with this dressing. Occasionally it is necessary to aid in its expulsion by very slight squeezing or by removal of sloughs with the forceps. On some occasions febrile and other symptoms have at times seemed to warrant more active interference with the knife, but, although urged to it in consultation, I have adhered to this plan of treatment without incision, and have obtained results which warranted its continued employment; and from previous experience with cutting, and from cases thus treated by others, I believe that the method suggested has the preference, both as to time occupied and final results, whereas on the point of pain and general comfort of the treatment it is far superior. I am quite prepared to admit, however, that, possibly from neglect or other cause, a very large suppurating carbunculous area might be formed which would demand very active surgical procedure, such as curetting, or even excision, with antiseptic dressing, but under the treatment outlined this has never occurred.

3. Felons.—It will no doubt excite surprise and criticism when I urge somewhat the same line of treatment for the various degrees of inflammation about the ends of the fingers which are known as paronychia, whitlow, and felon; but, having treated a very considerable number of cases in this manner during the last fifteen or twenty years, I am prepared to advocate it strongly. The cases referred to include not only those of superficial character, about the nail, but also those very deep seated, on the pulp of the finger, even when there had already been sleepless nights from the deep-seated throbbing. The ointment used here has always been the diachylon, or litharge ointment, prepared according to the formula of Hebra. This particular form of ointment I consider to be important, for I have not found such good results from that made by melting the diachylon plaster with oil or vaseline, as more recently proposed. The diachylon ointment of Hebra is prepared as follows: ℞. Olei olivarum optimi, ʒ xv; plumbi oxidi, ʒ iij — ʒ vj; olei lavandulæ ʒ ij. M. Add the oil to two pounds of water, with constant stirring; the litharge is to be slowly sifted in while it is well stirred, fresh water being added as required. The ointment is to be stirred until cold, and the lavender added. In winter a slightly larger quantity of oil is required to make a soft ointment.

When properly made (and this is difficult to secure), this ointment is of a soft, buttery consistency, and quite sticky. The affected finger is to be plunged into the jar and a considerable quantity taken up, completely enveloping the first joint to a thickness of ¼ inch. Over this are placed layers of absorbent cotton, and the whole loosely bound; sometimes it is more agreeable to spread the ointment on the cottton. It is generally desirable to renew the dressing about twice daily, but this is done with as little disturbance to the finger as possible, the ointment being hardly disturbed, unless there is pus discharged.

I cannot fully explain the benefit obtained by this dressing; but time and again I have seen the greatest relief, even after sleepless nights had been passed, and for many years I have prescribed this treatment with the greatest satisfaction and confidence. When applied early and in milder cases resolution takes place and no pus appears. But in those cases which were seen later or which are more severe pus forms and readily reaches the surface, and is either discharged spontaneously or by means of a painless prick through the dead skin. I have never had occasion to make the well-known deep incision, even in certain cases where it seemed at first as though this would be required. Repeatedly I have been surprised at the ease with which the pus has reached the surface. As remarked before, when it was necessary to aid its exit, this was done with a very superficial prick, entirely painless, and I have never seen any scar resulting.

It is quite possible that the most severe cases have not come under my observation, and I can quite agree that, when pus has formed deep in the tissues and is burrowing under the tight fibrous bands which cross the tendons, a free surgical opening may be called for. But if taken reasonably early and the treatment intelligently carried out, I believe that in a very large proportion of the cases the course will be such as I have before described.

This completes what I have to say in regard to the very simple and easy local treatment which I have long used in these three conditions, to the great satisfaction of my patients and myself. But I must repeat what I said earlier in the paper—namely, that I place the greatest value in the internal and general treatment of the patient, and recommend the local measures only in connection with the same, carried out in the fullest and most intelligent manner on the lines previously described.

Discussion of Dr. Bulkley's Paper.

Dr. Ross (Halifax) stated that about two months ago he was called in consultation to see a case of boils of a severe character. This patient was a middle-aged man who had been for many years a pretty free drinker. He had been confined to bed for a couple of weeks, and a few of the boils had gone on to suppuration. The treatment had been Donovan's solution and iodoform applied to those lesions which had suppurated. The bowels had also been kept freely open. He advised calcium sulphide gr. 1-10 every four hours, a blue pill at night, saline in the morning, and a bichloride solution, 1 to 2,000 to be applied to the lesions. In a week's time the patient attended to the duties of his office, all the boils having disappeared, with the exception of two which had gone on to suppuration before undergoing this treatment. From the rapid appearance of the boils it appeared to him that some internal cause had something to do with the origin of the lesions in this case, probably from faulty metabolism and the secretory organs failing to throw off the effete products.

Dr. Nevins Hyde (Chicago) pointed to the fact that the lesions under discussion were found chiefly on the back of the neck (when the coat collar was often effective as a nidus), the face, and the hands, regions remarkably exposed to the sources of infection. Walter Smith (Dublin) had said that the sulphide of calcium would one day be exposed in a museum of medical curiosities as a useless remedy once estimated of value in boils. The chief exceptions respecting an internal origin of boils were to be noted in the case of glycosuria and malaria where plasmodia were present.

Dr. C. W. Allen (New York) spoke of an internal remedy for boils suggested to him by Dr. Randolph, of Baltimore—namely, liquor ammoniæ in two-drop doses every two hours. He had employed it in many instances along with a possible suggestive element, telling the patient that the boils would cease coming, and in many instances this had been the result. In certain instances, of which two were mentioned by the speaker, large-sized bullæ had been the first lesion seen, the greenish core being disclosed only after the thick bulla wall, as upon the region of the knee, had been ruptured, making it appear as though the infection had come from within the tissues rather than through the intact epiderm directly from the outside. There might be furunculosis of internal origin as well as furunculosis of internal origin as well as furunculosis of internal predisposition, as seen in glycosuria.

Dr. Dawson (London) referred to the fact that on the one hand there is the exciting cause, and on the other the soil on which it operates. Possibly in many cases we are apt to attach too much importance to the former, and too little to the latter, while it is difficult to draw the line between local and general treatment where as a rule both are employed. He personally went so far with the reader of the paper as to believe that in many cases iron in some form causes such a change in the resisting power or tone of the skin as to shorten a series of boils following each other, as they so often do for a considerable time.

Dr. W. M. Nelson said he was unfortunately a sufferer from severe cardiac lesions, and consequently his portal circulation is not what it should be. For a long time past crops of boils have, at longer or shorter intervals, appeared about the anal cleft and buttocks. Never had he had a boil elsewhere. Internal medication had never had the slightest effect, but the pricking of the vesicle which precedes the furuncle and the instillation of a drop or two of pure carbolic acid always aborted the lesion or lesions, and bathing the adjacent parts with antiseptics completed the cure for the time being. He could not but believe that these lesions are the result of local infection requiring local treatment.

Dr. Duncan Bulkley, in reply, thanked the Chairman for his energetic criticism, which he had fully expected; truth could only be brought out by full and free discussion. But he wished again to emphasize that he had only reported what he had observed and practised for ten and more years, and felt quite as sure of his position as did his old friend Mr. Morris. He had himself been educated in Vienna, in the purely local school of dermatology, and had kept up with literature and medical progress in bacteriology. But thanks to circumstances, he had gradually been learning better things and had acquired broader views; and while recognizing and acknowledging to the fullest the importance of modern discoveries as to septicism, he believed that still more modern views would prevail in the newest dermatology, giving due value to local infective processes while it recognized and properly treated the constitutional conditions existing in the soil on which the micro-organism finds lodgment. He would call particular attention to the connection between boils and carbuncles and glycosuria, as mentioned by Dr. Hyde and also in the paper. This point he regarded as one of the convincing proofs of his position. If it was acknowledged that this connection did exist, then we have one example of a systematic state which predisposed to the infective process, and it remained only to discover what the other states were which favored the same; we should not be discouraged because they were difficult to determine, but with broad medical knowledge and experience seek to discover and rectify them. He protested against the assertion of Mr. Morris that drugs were used unnecessarily; he only wished to impress the necessity of treating the patient properly in all respects, and not attending solely to the single local condition present, as is too often done. In regard to sulphide of calcium, it certainly does control suppuration if a perfectly good article is used, and freely enough, as mentioned in the paper.

THE PHYSIOLOGICAL EQUIVALENT OF THE THYROID GLAND.

Since Baumann's remarkable discovery of an iodine containing body in the thyroid gland, there has been considerable discussion as to whether this substance represents the sole physiological principle of this gland. Professor Chittenden, who has given this question thorough and careful consideration, in a paper read before the American Congress of Physicians (*Amer. Med. Surg. Bul.*), states that iodothyrine is apparently the physiological equivalent of the thyroid gland. "Indeed, in its action on goitre, iodothyrine is more effective than the gland itself, since when the gland is taken it must first undergo digestion to liberate the iodothyrine, and some may be lost by putrefactive changes in the intestines." This statement from so eminent an authority, emphasizes forcibly one of the great advantages of iodothyrine over thyroid extracts. Its other points of superiority are, first, that being of definite and uniform composition, it can be administered with precision and with greater certainty of curative effects than where dried extracts of uncertain strength are used; second, that it is more agreeable of administration and much less liable to produce by and after effects. Professor Chittenden believes it pretty thoroughly established that iodothyrine possesses all the peculiarities associated with thyroid feeding, and there seems little reason to doubt but that this substance in the course of time will displace all other thyroid preparations.

SELECTED ARTICLES

ABUSE AND DANGERS OF THE NASAL DOUCHE.

By DR. L. LICHTWITZ, Bordeaux.

The practice of nasal irrigation is merely an application of an experiment by Weber, who showed, in 1847, that the nasal fossæ behave like the two branches of a syphon, and that a liquid flowing in by one nostril issues through the other, without a single drop passing into the throat, breathing taking place meanwhile through the open mouth. Seventeen years later, in 1864, Thudichum made a practical use of this experiment for the purpose of washing out the nose. He used a rubber tube, 1.2 meter in length, provided at one end with a perforated metal ball, and at the other end with a nasal piece. The ball was placed in a bowl, filled with a medicated liquid and raised somewhat higher than the patient's head. When this syphon was put in action, the liquid, to the last drop, flowed in a continuous stream through the nose. This very simple apparatus was soon modified and its place taken successively by the irrigator, the duck bill, the English or enema syringe, etc.; numerous forms of cannulæ were also invented.

With such a choice of instruments, apparently so easy to work, which practitioners thought it safe to leave in the hands of the patients themselves, the douche was bound to become rapidly popular.

Certain rhinologists prescribed it to all their patients, then general practitioners recommended it, even without having first examined the nostrils, and, lastly, the patients themselves, seeing it so commonly prescribed, began to use it of their own accord. At present the nasal douche is prescribed to every patient who complains of having to blow his nose too frequently; to any one who has a feeling of the nose being stopped up, and for the relief of a genuine obstruction of this organ. Weber's douche has in this way become a panacea for every variety of trouble in the nose.

Ten years ago, the pathology of the accessory cavities of the nose was practically unknown and the nasal and retro-nasal mucous membrane was believed to constitute the sole origin of the purulent hypersecretions. Old time practitioners were therefore excusable when they prescribed the nasal douche in all cases of profuse secretion. It is a well-known fact nowadays, however, that the nasal hypersecretion is, in the majority of cases, due to other causes, to foci of suppuration outside the nose and in its neighborhood, to sinusitis; the old expressions of chronic purulent rhinitis, of nasal or retro-nasal gonorrhœa, of nasal-pharyngeal catarrh, have no meaning now, and there is no longer any indication for nasal irrigation, even in cases in which the patient complains of having to blow his nose very frequently. It is still common practice, nevertheless, to have recourse to the nasal douche in all cases of hypersecretion; moreover, it is prescribed, without any special and previous examination, in all cases in which the patient complains at all of the nose, and persons are frequently met with who resignedly, and for months at a time, employ the nasal douche, though merely suffering from deviation of the septum or from some new growth in the nasal cavity.

These remarks hold good also of the abusive employment of the retronasal douche. Having been first resorted to twenty years ago, it was quite recently brought forward again as a novelty. It differs from the ordinary nasal douche in that the bent cannula is introduced behind and above the velum palati. Irrigation had, for a long time, been made from before backwards; it was now made from behind forwards. Have the results been any better?

The Nasal Douche Essential in Treatment of Ozena.

In the majority of cases, and whatever the method of irrigation employed, this practice is of no service. It is only called for when we have to free the mucous membrane of the nasal fossæ from pus and crusts which have been formed *in situ*, as for instance in cases of idiopathic ozæna. The sinuses do, indeed, occasionally take part in this affection, the pathogenesis of which is still obscure; but the main lesion is localized in the nasal fossæ, properly so called. This is the only disease for which I am in the habit of prescribing the nasal douche. The nasal douche in fact is the essential and most effective element in the treatment of ozæna, notwithstanding the present predilection for massage, electrolysis and certain other methods. Instead of Weber's syphon, I recommend my patients to use an ordinary syringe, or, still better, an enema syringe, provided with a nasal piece. This apparatus, with a comparatively small quantity of liquid and a strong and easily regulated flow, cleanses the mucous membrane much more efficiently than Weber's douche.

Experience shows that the nasal douche remains either very inadequate, or altogether useless, in all other nasal affections.

I should not express myself so strongly against the nasal douche, were it simply inadequate or useless; but far from being harmless, it may actually become dangerous. In spite of every precaution taken as to the choice of instrument, as to the composition and temperature of the liquid employed, as to strength and direction of the jet, the nasal douche is attended with drawbacks and even risks.

In the first place, the repeated flooding of the mucous membrane may lead to olfactory lesions.

The epithelium of the nasal mucous membrane, and the nerve ends which accompany it, are, especially in the olfactive regions, easily modified by medicated solutions. Liquids charged with carbolic acid, alum, zinc salts, even in weak solutions, are highly injurious. Pure water is also badly borne. Aronsohn has found that the only harmless liquids are those formed by the physiological solution of sodium chloride (0.73 per cent.), of sodium bicarbonate (1.46 per cent.), of sodium sulphide (2.92 per cent.), etc.

These solutions appear to become injurious when weaker or stronger than this. His experiments show that truly active antiseptic solutions are not free from danger to the sense of smell; other liquids can only be of use in cleansing the mucous membrane.

I know of numerous cases in which the power of smell was lost in this way, the loss being attributable exclusively to the nasal douche. In some of these cases the power of olfaction returned completely when the douche was discontinued; in others, it remained very blunted; in others again, it was definitely lost.

The Douche a Frequent Cause of Headache.

The nasal douche is frequently the cause of very distressing headaches. This headache is generally localized in the forehead, occasionally in the occipital region. It may probably be accounted for by the liquid passing into the sinuses. Such is also the opinion of Bresgen, who recently protested against the excessive employment of the nasal douche. I do not even hesitate to say that the injection of irritating liquids into the sinuses is apt ultimately to set up inflammation in these cavities. This hypothesis is quite as plausible as that of Harke, who considers that the main cause of sinusitis lies in the penetration into the cavities of infective masses, when the patient blows his nose forcibly, whilst at the same time compressing the two nares.

The objection may be raised that this pain and its various consequences are only brought on by nasal douching, when badly performed. This, at any rate, is the reason alleged by rhinologists when their patients complain of pain during the irrigation. I know, however, of numerous cases in which the headache occurred even with a moderate pressure, the flow being carefully directed from before backwards. I may mention in this connection the case of a colleague, who cannot take a nasal injection, even with every precaution, without at once suffering from extremely severe pain in the occipital region.

Another case is that of a surgical instrument-maker who some time ago complained to the physician of a watering place of a troublesome feeling of obstruction in the nose. He was ordered to take a nasal douche with the mineral water of the place. The patient took good care to apply the precepts which he had so frequently had occasion to recommend to his clients, and proceeded to douche himself with minute precautions. Still he made a failure of it; the very first jet of water gave rise to such intense headache that the treatment had at once to be given up.

Cases of this kind are much more common than is generally supposed, and many patients, on their return from certain thermal stations, where the nasal douche is the alpha and the omega of the treatment of all nasal affections, have frequently complained to me of similar symptoms.

The Liquid Liable to Penetrate the Middle Ear.

One of the gravest complications, however, met with by a good many otologists, consists in penetration of the liquid into the middle ear, this being occasionally followed by suppurating otitis media.

Apart from deglutition and phonation, both of which acts favor the opening of the Eustachian tube, and which it is difficult to avoid in the child during irrigation, the liquid may also pass into the tympanic cavity when the douche is continued too long, when the Eustachian tube is wide open, or when the muscles which close its orifice (the levator palati and the petrosalpingo-staphyline muscle) contract imperfectly. Dr. Lermoyez has therefore laid down the rule, in acute coryza, "of abstaining from all nasal irrigation, since the result may be described with mathematical precision by the following equation: acute coryza + Weber's syphon = acute otitis."

Among the many cases of suppurated otitis, due to the nasal douche, with which I have met, I remember particularly a very bad one, which was followed by mastoiditis.

The passage of the liquid into the middle ear cannot be prevented with certainty, in spite of all precautions. O. Brieger, who is by no means an opponent of the nasal douche, reports a case in which the liquid, which was being injected into the nose, came out through a wide and old perforation of the tympanic membrane.

If we remember that simple gargling (Wagenhäuser), aspiration of water through the nose (A. Barth), or local applications to the naso-pharynx are liable, in some cases, to lead to otitis, we can better understand that nasal irrigation is still more likely to give rise to this complication. As pointed out bv H. Schwartze, certain individuals are predisposed to this accident by the width of their Eustachian tube, and by its imperfect closure.

This predisposition increases, I believe, after retro-nasal operations, in particular after ablation of adenoid vegetations; nasal injections ought never to be resorted to after this operation. For the last eight years I have given up entirely all antiseptic irrigation after the operation of ' naryngo-tonsillotomy. During all this time I have never had a case of post-operative complication in the ear.

The repeated irrigations commonly resorted to after nasal operations (polypi, exostosis, cauterization) are useless, and further deprive the patient of the bactericidal action of the nasal mucus, which is both modified in its chemical properties by the greater number of the solutions usually employed, and mechanically washed out.

Lastly, it is bad for the patient to be under the illusion that the douche will cure him. He firmly believes in the treatment, which he looks upon as the last resource of therapeutics, and he goes on douching himself with resignation for months. In the meantime he is exposed to become a sufferer from serious complications of his disease, which might have already been radically cured had the surgeon taken the trouble to carefully investigate the cause, instead of resorting to an empirical treatment.

Such are briefly the drawbacks and the dangers of the nasal douche. Attention needs be called to them, because this method of treatment is daily growing more popular, and is tending to become a routine treatment in all cases of nasal affections.—*La Semaine Medicale.*

FOR TUBERCULOUS CYSTITIS.—Inject into the bladder thirty drops of a 1-5000 to 1-3000 solution of the following mixture: Corrosive sublimate, 2 to 4 parts; sodium chloride, 5 parts; distilled water, 100 parts.

TREATMENT OF CHRONIC RHINITIS BY MEANS OF GLYCERIN PLUGS.

Acute coryza, particularly when due to influenzal infection, is frequently followed by chronic catarrh, which has a tendency to persist indefinitely and is a source of great discomfort to the patient. In cases of this kind, the swelling of the pituitary membrane and of the mucous coating of the spongy bones prevents the patient from breathing freely, during the night in particular. This is a serious inconvenience for certain persons, such as teachers, public speakers, singers, etc.

The usual treatment resorted to in such cases consists in snuffing or insufflation of compound powders, containing menthol or cocaine, the introduction into the nostrils of vaselin with boracic acid or of mentholated oil; more frequently in nasal irrigation with salt water or with weak antiseptic solutions. All these methods of treatment are as a rule of very little value, irrigation in particular being fraught with multiple drawbacks, as pointed out by Dr. Lichtwitz in the present number.

These facts suggested to Dr. Vladimir de Holstein (Paris) taking advantage, in the treatment of rhinitis, of the osmotic and decongestive properties of glycerin, in imitation of the practice of gynæcologists, who find glycerin tampons, applied to the os, beneficial in chronic uterine affections with venous stasis and swelling of the tissues. Experience soon showed that these glycerin tampons, placed in the inferior meatus of the nose exerted a most beneficial effect on chronic coryza.

Dr. de Holstein invariably uses pure glycerin, having come to the conclusion that its action is not increased by the addition of boracic acid or of ichthyol; these substances in fact occasionally irritate the pituitary membrane.

The tampons are introduced by means of a small rubber urethral bougie; a thin layer of cotton wool is twisted around the end of the bougie and introduced gently into the nasal cavity, along the floor, until the point of the instrument reaches beyond the orifice of the posterior nares. This immediately gives the patient the sensation of a foreign body in the naso-pharynx. The sound is left in for from ten to fifteen minutes, when it is removed and introduced with a second tampon into the other nostril.

The patient easily learns to apply these tampons himself; they must be put in twice a day at least. Instead of the rubber sound, a common knitting needle may be used after its surface has been rendered rough by immersion in some strong mineral acid, such as nitric acid, so as to prevent the cotton wool from slipping off.

Each application of glycerin is followed by a profuse flow of liquid mucus, mixed with flaky materials and crusts, with which the nasal cavity was filled. Soon the breathing is rendered easier; this result is at first ephemeral, but it gradually becomes more accentuated and persistent as the treatment progresses. A permanent cure is rapidly obtained, except in cases of vaso-motor rhinitis, met with in neurasthenic individuals which, in addition to the local medication, also requires appropriate constitutional treatment.

THE SIGNIFICANCE OF THE VARIOUS "STOOLS" OF INFANTS CHIEFLY DURING THE PERIOD OF LACTATION.

By LOUIS FISHER, New York.

Stool.—The stool of a nursling or a baby on an exclusive milk diet should be yellowish in color, smeary, or pasty-like in consistency, and have an acid reaction. The smell should be faintly acid but not disagreeable. The color is due to bilirubin, and the reaction depends on the presence of lactic acid, the source of which is the milk-sugar. The only gases present are H and CO_2; according to Escherich H_2S and CH_4, to which the odor of adult stools is due, are not present. There are no peculiar albuminoids. Those existing in mother's milk seem to be entirely absorbed. Peptone exists in trifling amount. Sugar is not present. Pancreatic ferment is absent, and sometimes traces of pepsin have been found.

Mucus.—Mucus is always present in considerable quantity, also columnar intestinal epithelium.

In the stools of nurslings, large quantities of lactate of lime can be found, so also we frequently find oxalate of lime depending on the quantity of oxalate of lime ingested. Uffelmann has noted the presence of bilirubin crystals in the stools of nurslings, perfectly healthy children. Miller, who carefully studied the various micro-organisms in the mouth, found that most of them could again be found in the intestinal canal. He further found that certain germs possessed diastatic properties, and were capable of producing lactic-acid fermentation. In the milk fæces of nurslings Escherich found two germs; the one he called bacterium lactis aerogenes (or bacterium aceticum Baginsky) and the other the bacterium coli commune. In the meconium he found proteus vulgaris, streptococcus, coli gracilis, and bacillus subtilis.

Number of Stools.—The number of stools during the first two weeks is from three to six daily; after the first month two stools daily is the average; many infants have one, others three stools daily; that is largely due to the excessive quantities of water given to infants. As soon as the exclusive milk diet is changed to the mixed diet, we then lose the characteristic infantile stools, and they resemble more those of an adult; though remaining softer and thinner throughout infancy, they become darker in color, assume the adult odor, and have more varieties of bacteria than those previously mentioned as found in the stool of a milk diet.

Reaction.—Reaction of stools in diarrhœal disease and in health is chiefly acid, next in frequency neutral, alkaline stools rare. Green grass stools usually acid, seen in early stage of dyspeptic diarrhœa, color from a pale greenish yellow to grass green. Wegscheider has shown that the green color is the result of performed biliverdin. The condition in the intestine on which the transformation of bilirubin into biliverdin depends has been generally regarded as one of acid fermentation. Pfeiffer's experiments show this former opinion to be wrong. He found that none of the acids formed in such fermentation—lactic, acetic, butyric, propionic, etc.,—added to yellow stools outside the body turned them green, but made them deeper yellow. But dilute alkaline solutions added to fresh yellow stools turned them green after an exposure of thirty minutes to sixty minutes, and strong solutions turned them first brown, later after exposure to air intense green.

Typical green stools can be produced by giving an infant two or three grains of bicarbonate of soda. This I have tried dozens of times. The soda must be given for a few days. This explains Pfeiffer's alakine theory.

Typical Green Stools.—Typical green stools can also be produced by giving small or even large doses of calomel. If after having given bicarbonate of soda and produced green stools we give diluted hydrochloric acid in five to ten drop doses, the yellow color will again reappear in a few days. This is also true of rheum. Stools which are pale yellow when dsicharged and which afterward become green are often seen in disease. They may themselves be neutral or alkaline in reaction. This latter may, however, depend on the admixture of urine. An excess of bile may often cause very green stools.

Brown Stools.—Brown stools may be due to changed biliary pigment and to drugs; that is, bismuth causes the well-known dark stool, so also tannic acid and all iron salts give the dark stools, which vary from a deep brown to a black color.

Blood from the stomach or small intestine frequently gives the stool a black color resembling tar. Thus a practical point is, the brighter the color of the blood the lower down near the rectum and anus must the pathological lesion be looked for; the darker the blood the higher up must the cause be found; for example, in the stomach, duodenum, jejunum, etc., if the stool contains black blood. If the corpuscular elements of the blood are wanting, then the presence of blood can only be positively diagnosticated by either a micro-chemical examination or by means of a spectroscope. The presence of red blood corpuscles must always be regarded as a pathological factor.

A brown stool in an infant is frequently caused by a diet of animal food, or by a diet principally of broth. This stool has no distinct consistency nor reaction. In dyspeptic diarrhœa or in some forms of enterocolitis we have very offensive stools, and they resemble muddy water; with the latter there is considerable flatus during each movement.

White or light gray stools usually are of a putty-like consistency, sometimes like dry balls on a diaper; sometimes they appear like ashes, usually very offensive, consisting principally of fat. In the latter there is scarcely a trace of bile, or it is even absent altogether.

Mucus is always present in all healthy stools, and is so well mixed with the stool that it does not appear as mucus to the naked eye. Any appearance therefore of mucus easily visible should be regarded as abnormal. Mucus is present in every form of intestinal disease: Very abundant in inflammatory conditions affecting the large intestine, more so than in those affections of the small intestine, and especially so in inflammatory conditions of the colon, both acute and chronic.

Jelly-like Masses. Jelly-like masses or shreds of mucus and where the stool consists chiefly of mucus show that the affection is confined to the lower portion of the colon, or that it is located in the rectum. Long shreds of mucus frequently resembling false membrane are frequently found in catarrh of the large intestine. If the shreds of mucus are intimately mixed with the stool, then we must look for the lesion quite high up, and if it comes from the small intestine it is usually stained from bile. If the lesion is low down the mucus is not intimately mingled with the stool.

Dyspeptic Stools.—The first change noticed in the dyspeptic stool is the increase of fat. Often the stool is quite green and contains small pieces of yellowish-white color, which vary in size from a pin-head to the size of an ordinary pea.

Hitherto from their color they were supposed to be casein lumps. Wegscheider has taught us that they consist principally of fat. Baginsky has shown that large colonies of bacteria are contained in the lumps of fat. Frequently they are so numerous that it looks as though the stool were composed only of these cheesy lumps. They can be easily differentiated from real casein lumps by their solubility in alcohol and ether.

Fat Diarrhœa.—Biedert and Demme have devoted considerable attention to this subject. In some children the fæces showed 50 to 60 per cent. of fat, whereas the normal percentage in ordinary fæces varies from 13.9 per cent. (which is the normal quantity) according to Uffelmann.

Casein is not nearly as common an ingredient of fæces as is commonly supposed, as I have previously stated. Casein lumps can be seen in abundance in the course of diarrhœa during an exclusive diet of milk.

Rachitis is usually first noticed by persistent constipation. This is encountered soon after birth, and from the history we hear that it is of long standing, due to an atonic condition of the muscles. Associated with rickets is usually a large, flabby abdomen, the so-called pendulous belly.

Escherich says: "If albuminous decomposition with very foul, offensive stools exist, these articles should be withheld from the diet and carbohydrates given—dextrine foods, sugars, and milk. If acid fermentation is present, with sour but not offensive stools, carbohydrates are to be withheld and albuminous foods given, such as animal broths, bouillon, peptones, etc. In the decomposition of milk, the sugar of milk and not the casein is usually broken up."

Proteids of Milk. The proteids of milk are so thoroughly absorbed that only small traces of them can be found in the fæces. Normal milk fæces contain large quantities of bacteria, but chiefly two kinds:

1. Bacterium lactis aerogenes (Escherich).

2. Bacterium coli commune; other germs, especially those of the protolytic type (those that render gelatine fluid), are not found under normal conditions. Albuminous decomposition and its products, tyrosin, indol, phenol, and skatol are not found in milk fæces. But lactic acid, acetic acid, and formic acid and other fatty acids are present, causing the acid reaction. V. Jaksch found a saccharine ferment in the fæces of children. Baginsky found a peptonizing ferment. The amount of infant's fæces varies, but it has been found that 100 grams of milk food will produce about 3 grams of fæces, according to Baginsky. This is a vital point, but I have found it very difficult to determine, for in most cases the napkins of the infants are soiled with urine plus the fæces, thus adding to the gross weight.

Guide for Value of an Infant's Food.—The guide for the proper determination of the value of an infant's food consists in noting:

1. The child's increase in weight.
2. The proper assimilation of food by an inspection of the fæces.
3. The absence of all gastro-enteric disturbances: (a) Vomiting; (b) diarrhœa; (c) constipation; (d) colic or flatulence.
4. The child should go to sleep and appear satisfied after feeding.—*The Clinical Recorder*, July, 1897.

ON THE TREATMENT OF CYSTITIS WITH AMMONIACAL DECOMPOSITION OF THE URINE WITH UROTROPIN.*

By Professor ARTHUR F. NICOLAIER, M.D.,
(Reported from the University Medical Clinic of Göttingen.)

It is now about two years since I introduced hexamethylentetramin, the combination of formaldehyde and ammonia, into therapeutics under the name of "Urotropin." I had selected this name as the result of observations which showed that when sufficiently large quantities were administered internally the drug passed unchanged into the urine, and altered it in various respects. Not only is the excretion greatly increased in quantity, but it acquires the property of solution of uric acid, without losing its acid reaction; and, at incubator temperature, the Urotropin acts as a hindrance to the development of micro-organisms. On the basis of these observations, I used Urotropin in suitable doses in the treatment of uric acid concretions and bacterial diseases of the urinary passages; and the results of these therapeutic experiments were so favorable that I determined to publish them.† Since that time I have had further experience of the successful use of Urotropin and certain of its combinations in these disease conditions. These I intend to publish somewhat in detail elsewhere shortly. In the present communication I shall confine myself to a brief account of its use in cystitis with ammoniacal fermentation of the urine. Cases of cystitis where the urine remained acid, as also cases of inflammation of the bladder, consequent upon gonorrhœa, were also cured with the drug; but it seemed to give the best results in cystitis with ammoniacal decomposition of the urine, and it is in this form of inflammation of the bladder that I can more especially recommend it to the practitioner.

Urotropin is a weak base, and appears as white crystals, soluble with some little difficulty in alcohol, but very readily soluble in water. An aqueous Urotropin solution has a pleasant, sweetish taste, and gives an orange-yellow precipitate with bromine water, forming a bromine combination of the base. The reaction is well suited for the detection of Urotropin, and is demonstrable in the urine even after small doses of the drug; showing that the drug passes unchanged into the bladder. The excretion takes but a short time; I have been able to obtain the reaction fifteen minutes after administration of the remedy. After its stoppage the urine shows the bromine reaction for some time, the length of which is dependent upon the size of the dose administered. After a single daily dose of 0.5 grm. (7½ grains) it was found for about 13 hours; after 1 grm. (15 grains) for about 27 hours after administration.

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*Reprinted from "Der ärztliche Praktiker," Year X, 1897, No. 12.

† A. Nicolaier, "On the Therapeutic Use of Urotropin" (Hexamethylentetramin) *Deutsche Medizinische Wochenschrift*, 1895, No. 34.

As regards the dosage of Urotropin, my experience would show that daily doses of 1.5 grm. (22½ grains) should not be exceeded. For I have found that even when a single much larger dose was well borne, its continued use for longer periods of time caused unpleasant by-effects in a number of cases. These consisted of a burning sensation in the vesical region, appearing usually after urination, and radiating into the urethra; and occasionally, also, of frequent micturition. If, under these circumstances, the administration of larger doses of the drug is continued the symptoms increase in severity, and red blood corpuscles appear in the urinary sediment. But these symptoms soon disappear, and the secretion quickly regains its normal character when the Urotropin is stopped, or the dose of it is diminished in amount. Urotropin is not an expensive drug, and its use is rendered still cheaper by the fact that its manufacturers, the "Chemische Fabrik auf Actien" (formerly E. Schering), of Berlin, supply it to the trade in pastils of 0.5 grm. (7½ grains) in original packages containing 20 pieces.

In cystitis, with ammoniacal fermentation of the urine, one pastil of 0.5 grm. (7½ grains) dissolved in ¼ liter (½ pint) of plain or carbonated water, at ordinary temperature, should be administered three times a day, after meals, during the first two days. Its action is usually manifest by that time, and I am then in the habit of diminishing the daily dose to 1 grm. (15 grains), givng one pastil morning and night. Later on a daily dose of 0.5 grm. (7½ grains) is sufficient in many cases.

In daily doses, not exceeding 1 grm. (15 grains), Urotropin is well borne for a long time; some patients, affected with the uric acid diathesis have used it almost uninterruptedly, in doses of 1 grm. (15 grains), for one or two years; and one patient took 1.5 grm. (22½ grains), daily for almost nine months continuously, without any trouble. It is especially noticeable that I have never seen any disagreeable symptoms in the gastro-intestinal tract from its use.

Under the influence of the Urotropin there very rapidly occurs a marked change in the composition of the urine in these cases of cystitis, with ammoniacal decomposition. First the ammoniacal smell of the freshly voided urine diminishes in intensity, and soon entirely disappears. Then the reaction, not only of the fresh urine, but also of the entire daily quantity becomes acid again. The urine becomes clearer; the triple phosphate and urate of ammonia crystals disappear; and the serious troubles, so frequently caused by the abnormal constitution of the urine, cease. The amount of pus corpuscles also diminishes; these structures may entirely disappear, but more frequently they persist, though in diminished quantity, for a considerable time.

I desire to call especial attention to the fact that Urotropin, in the human bladder, does not act by killing the micro-organisms and spores that cause the ammoniacal fermentation; it merely prevents their development. This is shown by the circumstance that, after the ammoniacal decomposition of the urine has ceased under the use of the drug for several days, it begins again after its discontinuance. The Urotropin must, therefore, be taken steadily for some time; and then, when its use is stopped, the ammoniacal decomposition may not reappear. Thus I have observed a very severe case of cystitis, with ammoniacal decomposition of the urine, which caused the patient great pain, and which was not relieved by irrigation of the bladder with disinfectant solutions and the use of internal remedies, in which the Urotropin cured the fermentation and remedied the painful symptoms; and here, after three months' use of the drug, in daily doses of 0.5 grm. (7½ grains) to 1 grm. (15 grains), the difficulties did not reappear after it was stopped. The freshly voided urine remained acid, and contained only small quantities of pus corpuscles.

It is a remarkable fact that the urine, voided after the ingestion of 1.0 to 1.5 grm. (15 to 22½ grains) of Urotropin, becomes ammoniacal at ordinary temperatures; but it remains clear, and preserves its acid reaction when kept at a temperature of 37° C. (98.6° F.) in the incubator; and even the addition of several drops of urine in a condition of ammoniacal fermentation, several days later, does not set up the same process in the specimen. Evidently there must arise from the Urotropin, at the temperature of the body, some substance that hinders the development of the micro-organisms that effect the ammoniacal fermentation. It is very possible that under the circumstances formaldehyde is separated from it; which, as is well known, prevents bacterial development, even when present in the smallest quantities. But I have not, as yet, been able to prove this fact with certainty, even by boiling urine that has been kept for some time at a temperature of 37° C. (98.6° F.) with resorcin-soda lye, which is claimed by Lebbin to be a very delicate reaction for formaldehyde.

I also desire to emphasize the fact that Urotropin has been useful in my experience in cases of cystitis, with decomposition of the urine, in which even large doses of the salicylate of soda, so frequently employed in this form of bladder trouble, has been entirely useless. I have recorded two cases, in the paper mentioned above, which prove this. Case No. 2, in which there was a severe cystitis, is especially noticeable. Daily doses of Urotropin of 1.5 grm. (22½ grains) quqickly restored the acid reaction to the ammoniacal urine, and the patient's various difficulties lessened. They reappeared, however, together with the alkaline reaction and the ammoniacal smell of the urine, when the sodium salicylate, in daily doses of 6 grm. (90 grains), was substituted for the Urotropin. When the latter drug was taken again the patient improved.

Urotropin does, however, form a combination with salicylic acid, to which J. A. Flexner has called attention, and which has been recommended by him for therapeutic use. I have made a number of experiments with the salicylate of Urotropin, which was prepared for me by the "Chemische Fabrik auf Actien" (vorm. E. Schering), of Berlin, using it in various maladies. I shall only mention there that daily doses of 2 grm. (30 grains) can be given, but that it is not desirable to administer more than 3 grm. (45 grains) daily for longer periods, on account of the occasional unpleasant by-effects that may be caused by the Urotropin. And since the salicylate of Urotropin contains about fifty per cent. of salicylic acid, the amount of this latter, introduced in the above mentioned doses, will be between 1 and 1.5 grm. (15 and 22½ grains). The salicylate of Urotropin is, therefore, not suitable for the treatment of such diseases as acute articular rheumatism, in which experience has shown that only large doses of the salicylic acid combinations are effective. In cases where such large doses of salicylic acid, as well as Urotropin, are indicated, I should advise them to be given separately in appropriate quantities. In the treatment of cystitis, with ammoniacal fermentation of the urine, I see no reason to use the salicylic acid combination of Urotropin. As I have said, Urotropin alone acts very favorably, even in cases where large doses of sodium salicylate are entirely inefficacious.

CIRCULAR OF INFORMATION REGARDING THE SEPARATION FOR DIAGNOSTIC PURPOSES BY A NEW METHOD OF THE TYPHOID BACILLI FROM THE STOOLS AND URINE IN CASES OF TYPHOID FEVER.

For the Health Department of New York City.

The examination of specimens of blood from cases of suspected typhoid fever for the Widal reaction has been of great assistance in diagnosis. Occasionally, however, the agglutinating substances do not develop in the blood at any time, or only very late in the course of the disease, or an earlier infection cannot be excluded, owing to the lack of a reliable previous history. In these instances the Widal test fails to give the information desired.

Bacteriologists have long sought for a rapid and certain method of obtaining and identifying in pure culture the typhoid bacillus from the stools and urine in cases of typhoid fever, but hitherto without satisfactory results. Dr. Hiss, Assistant Bacteriologist to the Health Department, has devised a method, by which it is believed it will now be possible to recover and identify the typhoid bacilli within less than 48 hours, from specimens of fæces and urine containing them. The Health Department desires to thoroughly test this method and is prepared to undertake these examinations, if proper specimens are furnished.

While definite knowledge is lacking as to the number of typhoid bacilli usually present in the stools of typhoid patients, and as to the time of their appearance and disappearance, it is believed that they are generally present in the discharges, not only during the height of the disease, but also, though to a less extent, at its commencement and for a considerable time during convalescence. The appearance of the bacilli in the urine is usually later than in the fæces. The experience thus far obtained seems to indicate that the bacilli may be obtained from about 50% of all cases on the first examination, and from about 90% after repeated examinations. The Health Board hopes that these examinations will prove of value, not only for diagnostic purposes, but also in solving important sanitary questions relating to the presence in and time of disappearance of the bacilli from the stools during convalescence.

Physicians are requested to send specimens of intestinal discharges and urine from well-defined cases of typhoid fever, and also from all doubtful cases in which the Widal test has failed to give definite information.

It must be understood that, as yet, these investigations are largely experimental; but that when the typhoid bacilli are isolated in culture an absolute diagnosis of typhoid infection is obtained.

Directions for Preparing Specimens of Faeces or Urine for Examination.

Care should be taken to send, if possible, a specimen obtained from a natural movement, or one following a simple enema. No disinfectants, of course, should be employed. If the movement is formed, the portion from the part last passed, that is, the portion coming from highest up in the intestine, should be selected. In cases complicated by colitis, care should be observed to avoid, if possible, the selection of a specimen composed of largely mucus.

The specimen is collected by seizing a small portion of the discharges between the two slips of wood accompanying the outfit, and placing this in a bottle. The top of the bottle is replaced and the specimen returned to a culture station, or to the laboratory.

Specimens of urine should be received directly into the bottle accompanying the outfit, or should be collected in an absolutely clean vessel and immediately transferred to this bottle, which is then returned to a culture station, or to the laboratory.

The necessary outfits, with directions and blanks, may be obtained at the various Health Department Depots, where diphtheria culture tubes, antitoxin and other products are supplied.

CIRCULAR OF INFORMATION REGARDING THE WIDAL TEST FOR THE DIAGNOSIS OF TYPHOID FEVER.

For the Health Department of New York City.

The investigations of Grüber, Widal and others, published in 1896, showed that the blood of persons suffering from or having recently had typhoid fever contains, as a rule, after the fifth day of the disease, substances which, when added to a broth culture of the typhoid bacilli, arrest the characteristic movements of these organisms and cause them to become clumped together in masses.

It has been further shown that occasionally the blood of persons suffering from other diseases possesses this peculiar property; but that, when the agglutinating substances are present in these, it is in relatively small amount. These substances are also occasionally present in small amount in other diseases and even in health. The reaction is, therefore, a quantitative rather than a qualitative one.

The results of a very large number of examinations made here in New York and elsewhere show that if the blood contains agglutinating substances in sufficient amount to cause a prompt and marked reaction, when one part of serum or blood solution is added to ten parts of a broth culture of the typhoid bacillus, the presence of a previous or existing typhoid infection may be considered as probable, and that, if these substances are present in such an amount as promptly to produce the reaction, when one part of serum or dried blood solution is added to twenty parts of the culture, the presence of a previous or existing typhoid infection may, for diagnostic purposes, be practically considered as established.

In estimating the diagnostic value of a negative result from this test, we must remember that the reaction is rarely, if ever, present until at least four days after the appearance of symptoms; that it is occasionally absent in cases of typhoid fever until the third or fourth week, or even until convalescence is established; that when developed it may disappear after a few days, and that no definite relation between the severity of the disease and the degree and time of development of the substances causing the reaction has been established. For these reasons a single negative result in any suspected case only renders doubtful the existence of typhoid fever. In those cases in which the reaction is absent after the sixth day, it may be reasonably assumed that the large majority will not prove to be typhoid fever, and the absence of the reaction in all of several different cases of a suspected group, or after repeated examinations in any single case, affords evidence of very decided value in excluding the diagnosis of typhoid fever.

Either dried blood or the serum obtained from a blister may be sent for examination. The serum can be more accurately tested than the dried blood, and, whenever possible, this should be furnished for test. Outfits for preparing both kinds of specimens may be obtained at any of the Health Department's depots.

SYMPTOMATOLOGICAL VALUE OF THE SERUM DIAGNOSIS OF TYPHOID FEVER.

A monograph by Dr. Dineur, of Antwerp, on the subject of the serum diagnosis of typhoid fever, may be summed up as follows: That typhoid serum exerts an agglomerating action on Eberth's bacillus is generally admitted. On the other hand, however, this bacillus may also in certain cases be agglomerated by serum, obtained from patients suffering from other diseases, or from healthy individuals who have never had enteric fever. It must even be assumed that the agglomerating property may preexist in the blood, like the bactericidal property, but that, under the influence of the Eberthian infection, this special property becomes more or less developed in respect of the typhoid bacillus. To define the symptomatological value of serum diagnosis is therefore equivalent to determining the extreme limit of the agglomerating property apart from typhoid fever, beyond which the existence of this reaction is a sure sign of the latter affection.

It results from Dr. Dineur's own observations, and from a study of the cases published by those who have dealt with this question previously to him, that the maximum limit of agglomeration, apart from typhoid fever, is 1:20. As a matter of fact, all cases of other diseases than typhoid fever in which the ratio was reported to be higher than this, are said to be open to criticism, either because no comparison is possible between them and other observations, owing to technical divergencies, or because the absence of bacteriological control throws doubt on the real nature of the disease in the course of which the reaction was obtained.

The author therefore lays down the rule that a serum reaction of 1:25 is a sure sign of typhoid fever. His personal observations comprise fifty-five cases, of which twenty-five were cases of enteric fever. Among the latter were several of mixed tuberculo-typhoid and strepto-typhoid infection, in which the value of Widal's reaction was shown in a particularly striking manner.

The conclusions arrived at by Dr. Dineur are as follows:

(1) As far as at present known, Widal's serum reaction is a sure sign of typhoid fever when it furnishes complete positive results within an hour, with a dilution of at least 1:25.

(2) A negative result of the serum reaction, although its value is not so great as in the former case, nevertheless constitutes a strong argument in favor of the non-existence of typhoid fever; but to justify this assumption, it must be frequently repeated in the course of the disease.

(3) The association of tuberculosis or streptococci with the typhoid infection does not prevent the agglomeration reaction from taking place.

(4) The only case of agglomeration reaction in local infection by Eberth's bacillus met with, although not sufficient to base a general conclusion upon it, argues in favor of the proposition that, when Eberth's bacillus no longer acts as an agent of local infection, it does not determine the agglomeration reaction.

ACUTE ABDOMINAL DISTENSION IN CHILDREN.

By GEO. F. STILL, London, Eng.

The condition described is that of a rapid and often extreme distension of the abdomen, which supervenes usually in the course of a severe illness, and generally but not always shortly before death. Often there is no assignable cause, but generally it is secondary to diarrhœa or gastro-enteritis. While it seems to be a part of the process of dying in some cases, it certainly hastens death in almost every case, and in some appears to be the actual determining cause of death. It frequently occurs as a complication of broncho-pneumonia, acute cerebro-spinal meningitis, acute tuberculosis, and splenic anæmia. Its onset is usually rapid, and occurs late in the disease. The stomach, small and large intestines may be independently affected. The treatment must be prompt and vigorous; raise head and shoulders of child; hypodermics of strychnia; ammonia and brandy are good; tapping colon by passing large rubber tube may do in some cases.—*Pediatrics*, Vol. IV., No. 6.

To Relieve the Pain of Herpes Zoster.—For this purpose salicylate of methyl should be well rubbed into the healthy skin surrounding the eruption, which latter should be protected from the air by a suitable dressing.

PROGRESS OF MEDICINE

REPORT ON PROGRESS IN THERAPEUTICS.

THE CONTRIBUTIONS OF BACTERIOLOGY TO THERAPEUTICS.

Dr. William Halleck Park, in an abstract* of the Wesley M. Carpenter lecture, delivered October 21, 1897, has presented this subject most admirably. Dr. Park begins by saying it is now well known that bacteria cause diseases chiefly by means of the poisons which are elaborated during their growth. The abstraction of food from the body and the mechanical interference with functions which are caused by their presence are also deleterious, but in a minor degree. Although many complex factors influence the degree of susceptibility of the body to infection from any pathogenic germ, the most important and perhaps all-embracing one is whether or not the animal organism at the time and place of infection is in proper condition for the growth and activity of the invading germ. The living body is not a good soil for most bacteria, even after they have penetrated the outer protecting wall of skin and mucous membrane.

The protection against infection exists in different degrees in the same individual toward different bacteria and among different individuals toward the same bacteria. The causes of immunity, either natural or acquired, are still only partially understood. If a few virulent anthrax bacilli are injected into a susceptible animal, the results of inoculation are soon manifest and death of the animal follows. If an animal of the same species, which has previously been immunized, be inoculated with the same germ, the bacilli not only do not increase but soon die. It was found, when seeking the reasons for this varying action of the bacteria, that in non-immunized animals they develop unhindered by the vital activity of the cells or fluid substances of the body, while in the immunized animals certain cells are attracted by the bacteria, and eventually destroy them. Meunes's recent investigation of the pneumococcus infections would seem to show that the attraction of the leucocytes for bacteria is not wholly due to any inherent property of the leucocytes, but rather to the effect upon the leucocytes of substances in the serum.

Toxins Poisonous by Reason of their Affinity for the Cells.

As a working hypothesis it may be considered that a toxin is a substance which is directly poisonous according to the intensity of its affinity for the cells of the living body. The cells of a chicken, which can tolerate enough tetanus toxin to kill thirty horses, but which can be affected by still larger doses, may be considered to have 10,000 times less attraction for the toxin than those of the horse. If it is further considered that the toxin even has a stronger affinity for the antitoxin than for the cells, it may be understood how, this affinity being satisfied, the poisonous power is neutralized, and it can no longer injure the cells. Dr. Park states that in his opinion an antitoxin may be best conceived as a toxin which has been changed by contact with the living cell, either within the cell or outside of it.

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* *Medical News*, November 6, 1897.

An important characteristic of antitoxins is the fact that they are gradually eliminated from the blood by the urine, saliva, etc., so that after a few weeks they may have entirely disappeared. As the nature of micro-organisms which cause small-pox, etc., is not known, the immunity which follows their occurrence is naturally not clearly understood.

Bacteria differ greatly as to the particular tissues in which they can develop, and, therefore, in the manner in which they produce infection. For instance, a few tetanus bacilli introduced by a splinter into the foot multiply but slightly, but find the soil suitable for the production of sufficient toxin to kill within a few days. The same bacilli introduced into the body by way of the alimentary canal, although readily developing in the intestines, find no lodgment in the mucous membrane, and are therefore harmless.

There are certain general factors which temporarily affect the susceptibility or resistance of the living tissues to all micro-organisms. Thus, clinically, as well as bacteriologically, it is known that lack of food, exposure to heat and cold, over-exertion, extreme youth, old age, and many other influences predispose to disease, while opposite conditions assist the body to protect itself.

In order to determine whether curative agents are produced for any individual disease, it is necessary to examine in each, by means of the toxins, or by living cultures, whether immunity may be produced in an animal, and whether in such an animal the blood contains at any time sufficient antitoxin, or bactericidal properties, to confer immunity when introduced into the bodies of other animals. It must further be decided in each individual disease what length of time may elapse from the date of the infection in which the serum or toxin will still be able to prevent the development or arrest the progress of the disease.

Results of Treatment of Tetanus.

Tetanus antitoxin has been applied on a large scale in immunizing animals against possible infection. For instance, horses used for the production of antitoxin serums run a considerable risk of tetanus infection from the large number of hypodermic injections which are necessary. The Health Department lost several valuable animals in this way; and since then the experimental animals are immunized from time to time with 30 c. c. of tetanus antitoxin, with the result that tetanus does not occur. The results of treatment with tetanus antitoxin are not so brilliant as are those of immunization. By the time the symptoms of tetanus are manifested the cells are frequently too profoundly affected to receive any assistance from the antitoxin. The symptoms of this disease develop from one to five days after infection. Judged by a study of the statistics of 31 acute cases developing within eight days and 40 cases of long incubation and slow onset of symptoms, antitoxin seems to have positive curative effect in the less acute cases of tetanus. As it is impossible to tell at the outset which cases will be benefited, it seems wise, in conjunction with the usual treatment, to administer the antitoxin in doses of 20 to 50 c. c. twice daily in all cases of tetanus, and to begin the treatment at the earliest possible moment.

The Great Mass of Physicians Believe in the Efficacy of Diphtheria Antitoxin.

Diphtheria antitoxin is singled out among antitoxins by the success which has attended its employment in the treatment of diphtheria, as vaccine is among immunizing procedures in the prevention of small-pox. The great mass of physicians are convinced that diphtheria antitoxin in doses of 200 to 300 units will confer immunity against diphtheria from two to four weeks and that the period may be lengthened at will by repeated doses. By this means many children's asylums are now kept free from diphtheria. They believe further that when cases are seeen early, that is, before general poisoning has occurred, antitoxin may be relied upon to arrest, with but very few exceptions, the progress of the disease.

Tetanus and diphtheria antitoxin, although so nearly identical in their efficacy as agents for immunization, differ greatly in their curative value. The explanation of this is the manner in which the two infections begin and progress. The tetanus infection progresses from five to ten days undetected in the wound, but only after general poisoning has occurred is the disease manifested to the observer. The diphtheria infection starts on the surface and before its toxins are fully developed and absorbed it is diagnosticated.

The nearest approach to the powerful tetanus and diphtheria antitoxin is that of the plague bacillus. This with the toxins produces in immunized horses a serum which is distinctly antitoxic and bactericidal. In man the serum has been used in several hundred cases, and given beneficial results both for purposes of immunization and cure, the mortality having been lowered from an average of 80 to 50 per cent.

Streptococcus and Pneumococcus Serums Unstable.

The serum of animals immunized to streptococcus and pneumococcus toxin and cultures possess bactericidal and antitoxic properties, but of much less power than the plague serums, and the discovery that it rapidly deteriorates accounts for the fact that practically all of the preparations on the market are valueless.

The serum of animals immunized to tuberculosis is also extremely weak in bactericidal and antitoxic substances.

The new tuberculin of Koch requires improvement before it can be advised for practical application. Experiments show that most of the cells contain living tubercle bacilli which are capable of causing tuberculosis in animals. It is too early to judge of the therapeutic value of the new tuberculin, but with an improved technic it should be furnished free from bacilli.

Typhoid fever and cholera may be classed together. Animals may be immunized to both, and their serum will be found to contain feeble antitoxic and moderate bactericidal properties.

No form of micro-organism has yet been found in the brain or spinal cord of men or animals attacked by hydrophobia; nevertheless, it is certain that one exists, for the disease is readily transmitted from animal to animal. The preventive treatment instituted by Pasteur has been subjected to great criticism, but Dr. Park believes the efficacy is finally stablished. The immunizing value of the Pasteur treatment has been tested experimentally in the Research Laboratory of the Health Department of New York City, and though these experiments are not yet complete they present striking evidence that the injections do produce immunity, and that when properly carried out they are without danger even in very susceptible animals.

The results of the use of vaccine virus in the prevention of small-pox are almost universally accepted. The serum of vaccinated animals contains very feeble curative properties, too feeble for practical use.

Bright Outlook for Serum Therapy.

The outlook in the future is bright for obtaining through serums, or through the toxic substances of the micro-organisms themselves, means for immunizing against most, if not all, of the bacterial diseases. This immunity in most instances will not be of long duration, but the difficulty may be overcome by repeating the immunizing injection. When the micro-organisms that cause scarlet fever and measles and the other diseases in which a prolonged immunity follows recovery from infection the hope is that vaccine as efficient as that now used in small-pox may be obtained. The prospect of obtaining serums that will promptly arrest the progress of a disease by the destruction of the micro-organisms and their poisons already in the body is not so encouraging as it at one time appeared.

The serum procured from animals immunized by the pneumococcus has very slight curative power, but sufficient has been accomplished to make further investigation imperative and to justify physicians in using it in the treatment of cases of pneumococcus infection.

The hope for the future is that all growth of the micro-organisms may be stopped and further action of the bacterial poisons be prevented at the moment the treatment begins; but it cannot be expected that the tissue cells or the activity of the organs will be benefited except by neutralizing certain deleterious products, thus allowing the vital processes and other therapeutic aids a better chance of success.

EXPERT TESTIMONY.

There can be no question that the matter of medical expert testimony is exciting a degree of discussion both among the medical and legal fraternities which must in time be productive of some practical reform. The methods of testimony now in vogue in most of our States are clearly unfair to the physician who is called upon for an opinion, and prejudicial, we believe, to the ends of justice; and yet so difficult is it to do away with a long-established custom, even if manifestly imperfect and unjust, and so difficult to substitute a better system, that we find ourselves in the anomalous attitude of complete dissatisfaction with the present state of affairs, and of impotence in effecting a change.

This unquestionably is due to many factors, bound up chiefly with the established customs of the courts. It is clearly evident that however much the body of right-minded physicians may desire reform, such reform will never be forthcoming until the representatives of the law are equally solicitous; and just here, no doubt, is a difficulty of much magnitude. In any given case, theoretically the interest of a lawyer and that of a physician should be identical, namely, to arrive at *facts*. Practically, the lawyer wishes to arrive only at those facts which strengthen his side of the case, and almost inevitably the "unprejudiced" physician is drawn into the net and finds himself on the very verge of pleading the case in conjunction with his legal *confrère*. This outcome is inherent in the system, and human nature is often, as we know, too weak to withstand the strain, and the so-called medical expert unequivocally, though usually unintentionally, becomes the partisan which a lawyer confessedly and properly is. To the attorney pleading a case this is an evident advantage; to the physician it is, or should be, humiliating. It is clear at a glance that a systematic protest must come from physicians, and is not to be expected to come from lawyers. It is the dignity of the *physician* which suffers; he it is who finds himself so often in a ridiculous position.

Advisable, therefore, and necessary for final results as co-operation with the legal profession is, we as physicians should not abate our efforts in the slightest because such co-operation is not immediately forthcoming. The agitation has unquestionably begun, and a number of vigorous and logical papers are at hand from men of high standing in the medical profession. We would call attention particularly to an article by Putnam, which appeared in this JOURNAL of October 22, 1896, entitled "Remarks on the Opportunities and Responsibilities of Neurological Experts with regard to Medico-legal Testimony." The paper is replete with suggestions of value and temperate protest against the present state of affairs. A second paper is that of Dr. Walter Lee Munro, of Providence, being an address delivered before the Rhode Island Medical Society, in June of this year, and published in the New York Medical Journal, of July 31. Dr. Munro chose, as the subject of his address, "The Physician upon the Witness-stand"; and we have seen no better or more scholarly arraignment of the present system of expert testimony. It is, in fact, conclusive, and admirably illustrated by two cases in which certain medical testimony appears in the full measure of its absurdity. He makes a vigorous appeal for a fairer system, which will tend, at least, to re-establish the medical expert in the position of dignity which was his many years ago, and from which he has so pitifully fallen.

A still more stirring appeal for reform comes from the pen of Van Gieson, in conjunction with Sidis, in the April number of the New York State Hospitals Bulletin, in a paper on "Epilepsy and Expert Testimony." The case which forms the basis of Van Gieson's argument is one now famous, particularly from the fact of the part played in the final verdict by so-called expert testimony. In brief the details were as follows: an ignorant young woman was seduced by her lover, and after various unsuccessful attempts to induce him to marry her, finally in a public place cut his throat with a razor, leading to his almost immediate death. The trial, conducted from a purely legal standpoint, disclosed the fact of a strong motive for the crime, and the verdict, on the evidence then presented, was murder in the first degree, with a sentence of death. Pending the execution of the sentence, a strong sentiment of mercy gained a foothold in the community, and this, associated with the possibility of showing an epileptic tendency with temporary mental aberration, led to an appeal which finally resulted in a second trial. The medical witness in this trial was prominent; a detailed family and life history of the defendant was introduced,* and a plea of irresponsibility made on the ground of insanity—so-called "psychic epilepsy." In this trial the testimony of the previous one was, for the most part, ignored. In other words, as Van Gieson and Sidis put it: "In the first trial no excuse was presented and sentence of death was pronounced. In the second trial it appears that a tissue of 'psychic epilepsy,' ingeniously woven, but very flimsy when analyzed by the data in the first trial, allowed the jury to satisfy its conscience in expressing the sentiment of female palliation in a verdict of 'not guilty,' resulting in acquittal."

It is not our purpose to discuss the arguments for or against the above crime having been committed during a period of aberration; for that we would refer the interested reader to the respective papers of Van Gieson and Hrdlicka. We wish simply to call attention to the fact that here is a case which admirably serves as an example of the uncertainties of so-called justice in its relation to medical expert testimony, and of the absolute necessity for a discriminating and scientifically conducted investigation by competent and unbiased persons of all cases in which a medical opinion is to have weight with the jury.

What possible remedy is there for so unfortunate a state of affairs as a study of the Barbella case discloses? Van Gieson and Sidis offer a solution which certainly must appeal to every right-minded person, whether or not he may consider it possible of immediate consummation. In general, they would wish to have an official body appointed, best by the State, and naturally paid by the State, whose function it should be to investigate in detail and from every point of view cases given it, or any of its members, for consideration. Of the duties of such a body, which they would tentatively designate "The State Commission of Medico-legal Inquiry," they write as follows:

"In any criminal case where questions of scientific nature arise, the determination of these questions shall fall within the province of the commission, which shall work out the scientific data and render its general conclusions thereon, so that the court and jury shall have a solid basis to determine their verdict in connection with the ordinary testimony.

"Although in no wise tending to assume any of the prerogatives of the court, such a body might also advise as to the admission of cases for scientific inquiry and prescribe how this should be done in order to dispense with the authority of the dictatorial and ipse dixit "science" of "expert" testimony.

"Such an official body, best appointed by the State, might undertake the investigation itself or assume the responsibility of its direction and control; in the latter case scientific men would be retained whose career had gained respect in the scientific world, and whose publications, investigations, and real knowledge of their subjects would make their researches and opinions authoritative. This would reduce to a minimum the evil of having the second-hand knowledge of would-be "experts," whose shrewdness had gained them a reputation with the laity, that has no knowledge of pathological phenomena. After the commission or official body conducting scientific inquiry in legal cases has directed or undertaken the research, the complete data of such inquiry, together with the general conclusions therefrom, could be submitted in a dispassionate, truth-searching, scientific paper as to whether the plea of insanity is right or wrong; such a paper will serve as a guide for the jury or the judge who, under the recommendation of the commission, shall accord to the culprit the measure of punishment, restraint and care the case may demand."

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*See in same number of State Hospitals Bulletin a careful paper by Hrdlicka on "The Medico-legal Aspect of the Case of Maria Barbella."

That the establishment of some such commission would be of inestimable value can, we think, scarcely be questioned, nor do we believe it is too Utopian to hope that a plan at least approaching this in scope may be the not-distant outcome of a concerted effort at reform.

A less radical change, and one which, if but temporary, would be a decided step in advance, is that suggested by Mather, quoted by Munro in the paper to which we have already alluded. After speaking of the present system, Mather says: "The remedy lies in the designation by the court, in each case, of the experts who shall be called upon to testify. Whether agreed upon by the parties or selected by the judge, the experts should receive their appointment from the court. They should be officers of the court, sworn and acting as its commissioners for the better ascertainment of the truth." Munro goes on to say that Mather would thus "insure the selection of actual experts," whose impartiality and disinterestedness could be counted upon, and hence, all partisanship being out of the question, the lawyers for each side would unite in desiring the selection of the expert from those most competent.

The objection made by lawyers to such propositions is that they restrict the inalienable right of the litigant to call any witnesses he may see fit. It seems to us, however, that the litigant's right to call witnesses would remain unimpaired, although the importance of such witnesses as experts might be interfered with.

The almost universal verdict of disinterested writers on the matter is that the present mode of partisan expert testimony is, in its nature, dangerous and detrimental both to the dignity of the so-called expert and to the cause of justice, and that a reform along the lines indicated in the foregoing quotations is heartily to be desired. Unquestionably we should help along such reform by every means in our power. In the meantime our efforts should be unsparing in demonstrating to the body of lawyers and to the laity that a strict virtue and integrity and judicial fairness lies behind our testimony, no matter by whom we may be summoned to appear. Just here a plea may rightly be made to the whole body of physicians, a protest which constant occurrences in the courts amply justify. It is, simply, that physicians in good standing shall testify only in those cases in which they have special knowledge; that to qualify as an expert shall mean a distinct and painstaking training along certain definite lines.

In other words, that the dignified term "Expert" may not be robbed of the last vestige of its meaning.

We cannot do better than quote in this connection a passage from Putnam's paper, to which the reference has already been given. After suggesting certain remedies, he says: "It is probable that these attempts on the part of trained experts to improve their own testimony and increase the respect in which it was held would have the indirect effect of discounting the testimony of those who are less well qualified.

"It is as absurd for a surgeon, however considerable his experience, to assume to pass judgment on a difficult question of neurology or psychiatry as it would be for the neurologist to give a critical opinion on the merits of different incisions for laparotomy; and the fact that this absurdity is not generally recognized is but another illustration of the low respect in which medical testimony is held."

Should such advice as this be conscientiously followed, we might, at least, flatter ourselves that a first step had been taken towards an ultimate reform, such as Van Giesen and Sidis so forcibly bring before our attention.—Editorial *Boston Medical and Surgical Journal.*

CELANDINE IN CANCER OF THE FACE.

Dr. Krainski, writing in the Russian Ophthalmic Review, records four cases of malignant disease of the eyelids and face, in which he employed the celandine treatment. In two of the cases the neoplasms completely disappeared. In the other two there was distinct improvement, but the cases could not be followed up and so the ultimate result cannot be stated. The time required for the destruction of the tumor was not more than a fortnight. Several injections were made in the sound tissue bordering upon the neoplasm. They were composed of equal parts of extract of chelidonium, sterilized water, and glycerine, four to eight minims of the mixture being introduced at a time. In addition to these a 50 per cent. solution of the extract in glycerine was applied externally twice a day and a dressing put on. The celandine did not affect the healthy tissues and was well tolerated by the conjunctiva. There was some pain for a few hours, and in two cases pyrexia. There was, too, a good deal of swelling around the tumor, and in one case suppuration at the situation of the punctures. Dr. Krainski has also given celandine internally in cases of cancer of internal organs where operation was impossible. A further paper is promised on this subject.—*British Medical Journal.*

WHAT CAUSES COPAIBA AND OTHER SYMPTOMATIC RASHES?

Dr. David Walsh, physician to the Western Skin Hospital, London, writes, in the *Medical Press and Circular*, that the causation of drug-rashes may be taken as a smaller section of a wider subject, more especially in the case of medicaments of the comparatively simple and constant composition. A host of familiar instances of cutaneous irritation following the ingestion of various medicinal agents will occur to the mind of the reader. Let us take three of them as types—iodide, arsenic and mercury—all of them freely used in skin practice, and ask by what process they set up rashes in the human body. Of all three drugs it may be at once stated that they are capable of being excreted from the body by any of the ordinary or extraordinary channels of elimination, and that they have been frequently detected in the saliva, blood, urine, sputa, and in the mammary and other secretions. One and all have been shown experimentally, when administered in sufficient doses, to set up nephritis in lower animals, and clinically it is well known they may cause both nephritis and dermatitis. They have all of them been found in the sweat and in every other conceivable secretion and excretion. It would be impossible to review in this place the mass of clinical and experimental data upon which this part of the theory of excretory irritation has been founded, but the main facts will be familiar to every student of materia medica. The following general propositions as to the three drugs in question may be summed up as follows:*

1. They are alterative, antiseptic and poisonous.
2. They are epithelial irritants.
3. They are eliminated from the body by one or all of the various excreting organs.
4. They may cause multiple dermatitis.
5. In moderate doses they may cause diuresis or transient albuminuria, and in large doses, albuminuria, hæmaturia, or suppression of urine.
6. In large doses they have been shown experimentally to disorganize the kidneys in the lower animals, and a similar result often follows poisonous doses in man.
7. Their action appears to be greatly influenced by the susceptibility of the individual.
8. They exercise an undoubted control over some skin diseases.

The foregoing considerations† will lead us a step further towards the main question, as to why these drugs, when introduced into the system, are capable of causing symptomatic rashes. Their irritant action upon the kidneys we infer from such clinical data as pain, hæmaturia, and the presence in the urine of albumen and renal casts; upon the bowel from colic and diarrhœa; upon the lung from cough, dyspnœa and sputa, and upon the remaining great excretory organ, the skin, from the objective rash. As regards the action of any one of the three drugs upon organs other than the skin, few physicians would deny the occurrence of direct irritant action. It is only when we come to the skin that both text-books and teachers confront us with doubts, difficulties, and vague propositions as to nervous and reflex vascular influences. Surely, if the dermatitis of iodine, of arsenic, or of mercury be due to stimulated nervous action, then the accompanying nephritis and enteritis should also be of neurotic origin. So, too, with reflex vascular phenomena. If we attribute to them the rash of scarlet fever, there is no apparent reason why we should not also trace other attendant organic inflammations to a similar source. To the writer it seems that however much vascular disturbances may complicate and emphasize a skin trouble, they can seldom be regarded as its starting point. Moreover, any such reflex theory, whether nervous or vascular, leaves in obscurity the precise point of application of the original specific stimulus. The more reasonable explanation appears to lie in the fact that the skin forms one of a series of excretory outlets from the body, and that it becomes inflamed by virtue of an irritation that may affect any other organ of elimination.

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* "Excretory Irritation." David Walsh, M.D. London: Bailliere, Tindall & Cox. 1897.

† *The Medical Brief*, St. Louis, November, 1897.

Selective Action of Drugs as to Excretory Channel.

A striking point about these drugs is their selectiveness of channels of exit. Iodine is thrown off chiefly by the kidneys, when the latter are healthy; arsenic by the kidneys and bowel, while mercury has a peculiar affinity for the intestinal exit, a fact shown by the purging that may follow inunction. When large doses of calomel are given it seems probable that some of it is converted into perchloride in the stomach, whence it is absorbed into the system and excreted later into the bowel. While it is true that these and most other drugs seem to have their favorite channels of exit, it appears to be equally true that at times they can take their departure by any of the alternative routes. Supposing arsenic or iodine to be blocked at the kidney, either because that organ has been damaged or its epithelium roused into a state of revolt by the first advent of the irritant, then the drug naturally endeavors to escape from the body by other and less resistant channels. In the case of iodine such a state of affairs is at once signalized by the coryza, the metallic taste, the griping, the rashes and the other familiar symptoms. Indeed, many authorities state that "iodism" is more likely to occur when kidney elimination is defective. They do not, however, indicate in what way the drug affects the eliminatory outlets. From the writer's point of view it seems likely that the arrested and accumulated drug is vicariously excreted by organs other than the renal, and during its passage it directly inflames the epithelial elements. Of this, indeed, we have apparently direct proof in so far that iodine has been detected, by various observers, in the pustules of iodide rash.

What is true of the three drugs chosen as types, no doubt applies more or less cogently to other medicinal agents that act as epithelial irritants. Cantharides absorbed through the skin from a blister may cause hæmaturia; mercury taken up from inunction may purge, when it may be called an excretory purgative; arsenic, from an external escharotic application, may cause redness of conjunctivæ and other symptoms of arsenical poisoning. Sulphur seems to have a mild stimulant action upon all the excretory outlets, without, so far as we know, doing any particular damage. It has a well-known stimulant action when applied externally to the skin. Indeed, the proposition may be advanced in broad and general terms that most drugs which, given internally, cause rashes, have a correspondingly stimulant or irritant action upon the external surface of the skin. This general rule is conspicuous in the case of iodine and arsenic, and hardly less so in that of mercury. Other curious examples are belladonna, chloroform, chrysarobin, iodoform, salicylic acid, tar and turpentine, which have a double action upon the skin, both as external and internal irritants. It would be an interesting task to investigate the effect of all drugs known to cause symptomatic rashes, not only upon the epithelium of cutaneous surfaces, but experimentally upon that of other eliminating organs. In that way it is not impossible that our present practice as to dosage and selection of many drugs would be considerably modified.*

Probable Deleterious Effects of Irritant Drugs.

Assuming that symptomatic dermatitis ensues as part of a general excretory action, the practical conclusion is obvious that any drugs which cause mischief to the skin should be given with great caution lest they injure other organs. Upon the point whether the internal drugs used in skin practice may not act thus injuriously the writer has elsewhere written. We know that, as a rule, arsenic acts on the skin only after it has been administered for some time, or, as the phrase goes, has accumulated in the system. May it not be that the kidney, the usual channel of exit, has ceased to eliminate the drug owing to some form of epithelial disablement? We know that long-continued excretion of the gouty poison is able to set up kidney disease. Arsenic is obviously a more powerful irritant of epithelium than the poison of gout, and there is no apparent reason why the long-continued elimination of arsenic should not also cause a nephritis. On account of its irritating nature few dermatologists would venture to use arsenic externally, except as a caustic. Yet the drug is given daily as an internal remedy, and, when once introduced into the body must be sooner or later eliminated by organs not a whit less delicate than the skin—organs, moreover, which are constructed upon a similar anatomical type, and which are known to be invariably damaged by poisonous doses of the drug. Nor is there any reason, so far as one can see, for assuming any essential difference between the epithelium of the skin and of the kidney in their response to irritants. To take an example, skin and kidney react to a common irritant, cantharides, just as happens in the case of many other specific drugs capable of causing dermatitis. Arguing in a similar way, it is not easy to understand how the long-continued excretion of such irritant drugs as iodine and mercury can be thrown with impunity upon the kidneys. It is a common observation that albuminuria may occur during a course either of mercury or of arsenic. May it not be that we too readily assume that the albuminuria in these instances is purely functional?

TREATMENT OF CHLOROSIS.

The young physician just starting into practice cannot help but be impressed with the frequent occurrence of menstrual disorders in young girls during the period just succeeding the age of puberty. The metamorphosis of a girl into a woman, consisting as it does of structural and functional changes throughout her body, in many instances leaves behind pronounced alterations in the quality or even quantity of the blood current. How common it is to have a mother bring her daughter to the physician and say, "Doctor, I would like to have you do something for my daughter. For nearly a year she has been losing interest in everything and seems to be completely worn out. She has no appetite and absolutely no ambition for work, study or play. She does not lose flesh or grow thin at all, but her color is so poor and she seems so weak that I fear she is going into consumption."

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* *The Medical Brief*, Nov., 1897.

Inquiry on the part of the doctor elicits the further information that the young lady in question is sixteen years old or thereabouts, and that she is a school girl. A year or two ago she first menstruated and since that time has been unwell only twice, or at irregular intervals varying anywhere from three to nine months. Her bowels are either constipated, or the reverse, and she may complain of headaches, vertigo, palpitation of the heart, insomnia, indigestion, etc., etc. The pale face with its sallow greenish tinge, the bleached tongue, the colorless conjunctivæ and finger nails, tell well the tale of impoverished blood. Combine the history with the objective symptoms and the diagnosis is clear of chlorosis or greensickness. The absence of cough or pulmonary symptoms excludes the dreaded "consumption," but we have instead a condition of the blood in which the essential constituents are diminished and the whole quality of the life-giving current so depreciated that the various organs of the body are unable to perform their normal functions. The uterus is small and illy developed, and the supply of rich blood it so urgently requires in its developmental state is not to be had. Is it any wonder, then, that the chlorotic girl does not menstruate regularly? It is a great wonder that she ever menstruates at all. Correct the anæmic or impoverished condition of her blood and the physiological function of her uterus will be resumed as naturally as that of any other organ.

How this chlorotic condition can best be corrected is the next question and one which because of its frequency concerns every practicing physician. Countless remedies have been presented to the profession, but far and foremost above them all is iron, notwithstanding certain high authority to the contrary. Arsenic is certainly valuable, but it ranks far below iron or even manganese in the therapeutics of anæmia. In order to be most efficacious, however, the iron should be in its most readily assimilate form and until recently the carbonate and albuminate have been supposed to present this requisite in the highest degree. But since manganese has grown in favor as an adjuvant to iron, a new preparation has been submitted to the medical profession and in every way it has proven itself an ideal one. I refer to Dr. Gude's preparation of the peptonate of iron and manganese, known as Pepto-Mangan. This admirable combination of iron and manganese is readily taken into the human economy and appropriate to its needs, without deranging the weakest alimentary tract, or hindering in any way the normal processes of digestion, assimilation and excretion. It should be given in water or milk in teaspoonful doses after meals, and its administration is invariably followed by the results desired.

But in order that the medical treatment of chlorosis may be most valuable and efficient, it should be augmented by auxiliary treatment consisting of careful attention to diet and exercise. It goes without saying that the food of an anæmic girl should be most nutritious and particularly abundant in albumen, while the exercise should aim to provide greater quantities of oxygen in the form of pure air, without lowering the vitality. Walking, skating, tennis or bicycling in moderation are all able to supply the demand for exercise.

Treatment laid down on the above lines, followed out in every instance with good habits of hygiene and a careful observance of Nature's demands, will regulate the various functions of the body, and the menstrual function will prove no exception to the rule.

The following cases will substantiate the above:

Case I. Miss C. S. K.—Seventeen years old. Decidedly anæmic and much troubled with constipation. First menstruated at fourteen, since which time she has never been regular, flowing profusely sometimes twice a month, and other times going three or four months without menstruating at all. Has frequent fainting spells and a decided anæmic heart murmur. At time of coming under observation had not menstruated for two months and ten days.

Treatment consisted of a regulated diet, tablets of aloin, strychnine, belladonna and cascara sagrada, one each evening until bowels were regular, and teaspoonful doses of pepto-mangan (Gudge) after meals. Gradually the fainting spells and heart symptoms disappeared and on the fifteenth day after commencing treatment she began to menstruate, the flow being natural in quantity and continuing four days. Treatment was continued and twenty-nine days later she menstruated again, continuing this time five days. Soon after this the pepto-mangan was stopped. From now on, up to the present time, a period covering three months, her menses have appeared regularly every twenty-eight days.

Her whole appearance is changed and in every respect she appears well and strong. Period of administration of pepto-mangan 55 days.

Case II. Miss K. M.—Aged twenty. Menstruated first at age of fifteen and was fairly regular for three years, but since an attack of typhoid fever two years ago, has never known when she was going to be unwell. Patient was not thin, but face was pale and yellowish, hands and feet were cold "all the time," and her whole condition was one of "blood poverty." Complained of frequent attacks of diarrhœa following constipation.

Treatment consisted of plenty of out-door exercise, good food with abundance of milk, and pepto-mangan (Gude) in teaspoonful doses after meals.

Her restoration to health has been rapid and satisfactory. She has menstruated three times since beginning treatment, the longest interval being thirty-one days. Says she is all right and her appearance certainly sustains her words.

In this case the administration of pepto-mangan covered a period of thirty-six days.

Case III. Miss D. L.—School girl. Aged fourteen. For two years she had been troubled with headaches, dizziness and short breath, fainting away at slightest provocation. Had no appetite and as her mother expressed it, "for the last six months had been going down hill pretty fast."

Had been treated by a physician for heart disease, but received no benefit. Menstruated first seven and a half months ago, "but had not seen anything since."

Examination showed heart to be normal, although it was a trifle fast, and a slight murmur could be determined when patient was in a recumbent position, evidently anæmic in origin. Lungs proved to be all right.

Her general condition was anæmic and she was put on pepto-mangan (Gude) a teaspoonful after meals, and sent into the country where she could be out doors most of the time and have plenty of eggs and milk. A letter from her mother says that she has changed so that she can hardly believe it is the same girl. Furthermore, her menses appeared twenty-one days after starting the pepto-mangan and returned again twenty-nine days after. The pepto-mangan was ordered stopped and since then I have not heard direct from the patient, although from her father I learn that she is "perfectly well" and coming home soon.

Period of administration of pepto-mangan, fifty-six days.

CASE IV. Miss L.—Aged eighteen. Had never menstruated. Her general appearance was one of profound anæmia. A careful examination eliminated any abnormality of general apparatus. Organs normal in relation, but undersized. Prescribed pepto-mangan in teaspoonful doses after meals and gave general directions as to diet, etc. Began to menstruate thirty-two days after beginning treatment, the flow continuing one week. Twenty-nine days after she menstruated again. At the present writing she is still under treatment and is due to menstruate in seventeen days. Her whole condition is very much improved.

THE INFLUENCE OF LIGHT ON THE SKIN.

In the July number of the British Journal of Dermatology, Dr. Robert L. Bowles states that he has for many years been engaged in investigating the effects of sunlight on the human body, and especially the penetrating effects of rays reflected from snow and other surfaces (*N. Y. Med. Jour.*). Prof. Roentgen, he says, finds that certain rays generated or excited by electrical action penetrate most of the human tissues and other substances, and are stopped by substances of a different nature. The author, on the other hand, has demonstrated that reflected luminous or photo-chemical rays also penetrate the human skin into the deeper tissues beneath and produce within them great and important changes. He gives the following summary of facts and conclusions of various phenomena observed by him from time to time:

1. The heat *qua* heat is not the cause of sunburn.

2. That there are strong reasons for believing that sunburn is caused by the violet rays or ultra-violet rays of light reflected from snow, and that it is not necessarily of the same quality as that which is incident.

3. That Captain Abney finds that the violet or ultra-violet rays are very strong at high altitudes, and believes that altitude has much to do with sunburn.

4. That altitude alone does not explain sunburn, for one may be unburned on rocks, say at 10,000 feet, and yet become immediately affected on descending to a glacier 3,000 or 4,000 feet lower down.

5. That sunburn and snow-blindness arise from similar causes, and that sunstroke and sun fever may be associated with the effects of penetrating light rays.

6. That rays from the electric light produce much the same results as sun rays reflected from snow.

7. That the bronzing of the skin and the browning of the wooden chalets are probably produced by rays reflected from snow.

8. That various pigments, but chiefly those containing red and yellow, stop or alter reflected rays and prevent the physiological and pathological changes usually due to them.

9. That freckles, which are but the milder effects of luminous or chemical rays, stop the penetration of those rays through the skin.

10. That the sometimes very serious inflammatory changes in sunburn and in what Mr. Hutchinson designates "summer eruptions" are due to the perpetration of reflected luminous or photo-chemical rays through the skin to the deeper tissues beneath.

11. That photography often demonstrates the existence of freckles and, report says, various eruptions deep in the skin which are perfectly invisible to the naked eye, showing that the luminous or photo-chemical rays are stopped or altered by them, and not reflected back, as no change is produced on the negative—an effect which suggests that these photogenic rays have penetrating powers as yet unknown.

12. That the wood of Swiss chalets is burned perfectly black (carbonized) on its surface by rays reflected from snow, which rays in time penetrate deep into the substance of the wood and change it into a dark brown color.

13. That the first effect of snow rays on a new chalet is shown by its action on the resin of the wood, which "sweats out" and leads more easily to the charring of the woody fiber itself and the subsequent changes in the deeper parts.

14. That Captain Maude, R. E., has shown from his own personal experience and from experiments on many friends, that solar rays in India produce sun fever of a very serious kind, which was entirely prevented by the wearing of an orange lining to all his clothes and inside his hat. These experiments demonstrate the penetrating power of light rays through clothes unprotected by color, and their important influence on health. In relation to this, the author has shown that a lady wearing a linen blouse with red and white stripes was strongly marked with red and white stripes on her shoulders, but the red lines on her skin corresponded with the white lines of the linen—that is, the red stripes had completely stopped all the rays from affecting the skin beneath them.

15. That the author has often shown that rays reflected from certain surfaces—such as water, gold and silver lace, white walls, white veils, certain clouds and mists—act physiologically in a peculiar manner and quite differently to direct light, and that some physical changes hitherto unexplained must take place in light during or after reflection.

16. That in relation with the foregoing are those marvelous changes in the vegetable kingdom connected with the formation of chlorophyll and the depositions of starch.

From these and many other observations Dr. Bowles says that he can not help feeling that Roentgen rays may be modifications only of ordinary light, and that their further elucidation must go hand-in-hand with a further inquiry into the profound changes caused by reflection to which he has above referred. It need not necessarily be assumed, he thinks, that what we call darkness implies an absence of all the forms of light.

In August, 1896, the author, assisted by Mr. Travers, undertook some experiments to discover the cause of the radiant energy from snow being so much more irritating to the eyes and skin than direct energy from the sun, as follows:

1. To show the relative values of sunlight and snowlight in freezing iodine from its combination with hydrogen.

2. To test the relative effects of sun on xxx Paget's plates, inclosed in cases made of albuminum and carload, in producing pictures like those of Roentgen.

These exposures, says Dr. Bowles, were effected on snow at an elevation of 8,040 feet, near the hut of the Ober Aletch Glacier, on three consecutive days. The weather was bad and uncertain, but there was some sunlight, and some interesting and definite results were obtained.

Bottles containing equivalent proportions of a sulphuric-acid solution and potassium iodide were fixed in cases and exposed simultaneously to the sun and snow; some bottles were coated with pigments, others with cloths of various colors, but each case contained also some of the solution in an uncovered bottle as a control experiment.

The results were expressed in iodine equivalents, and they appear, he says, as Mr. Travers expresses it, "to indicate that the actinic value of the reflected light from snow is somewhere about 0.7 to 0.8 of the value of the direct rays of the sun."

The x-ray plate exposed to the sun displayed skiagraphs of a piece of tin, whereas on the plate exposed to the sun no change could be detected; but as there are reasons for the possibility of this plate having been spoiled, this experiment was not conclusive. The author quotes Mr. Travers, in his remarks on the experiments, as follows:

"In dealing with the published accounts of the cases of sunburn and dermatitis produced by the so-called x-rays, it is not at all certain that the injury done to the hands and arms of the operators was due to the rays which are capable of penetrating aluminum sheets, etc. We know that the radiations from a Crooke's tube include rays which come within the visible portion of the spectrum, and it is to these rays that we may attribute the power of producing sunburn.

"Further, while it takes a very long time to produce sunburn in the neighborhood of a tube which will fog a photographic plate, contained in a dark slide, in a few seconds, light reflected from the snow will sunburn in a very short time, but will not fog a plate in a dark slide.

"In a paper which appeared either in the Lancet or the British Medical Journal, a few weeks ago, it was shown that the effect produced by certain kinds of light—e. g., light from incandescent, gas or arc lamps—produced injurious effects. The injury could not be attributed to the presence of a greater intensity of violet or ultra-violet light than was present in sunlight, but was due to the absence of 'red' radiation.

"In the reflected light from snow the heat rays are nearly entirely absent, the violet (chemical) rays would be present with almost the same intensity as in the direct sunlight.

"Considering the lack of evidence in favor of the x-rays pure and simple being a cause of dermatitis similar to sunburn, it is worth while reviewing the fact in support of the theory that the true cause is to be found in the violet, or chemical, rays or in the increase of intensity of the violet rays with regard to the intensity of the red rays.

"I think that the facts cited in your paper furnish sufficient support."

Here, continues the author, from an entirely physical point of view, Mr. Travers, like others, arrives at conclusions similar to his own—namely, that the vital changes on the skin are due to the chemical rays, and apparently to those rays alone, and that the rays issuing from a Crooke's tube are not an entirely new form of energy distinct and separate from light, but contain a proportion of luminous and chemical rays, and that light, as such, as well as the divisions into which it can be split up, may penetrate wood, clothing, and the human tissues.

Dr. Bowles refers to Dr. Unna, who, in 1885, dealt very fully with the subject of pigmentary changes in the cutis, and suggested that they depended on the effects of the chemical rays, and that curcuma and colors acting on the light rays would prevent changes taking place. He refers also to an excellent paper by Dr. Hammer, of Stuttgart, entitled "The Influence of Light on the Skin," in which the author deals with the subject first biologically—for example, the action of light on worms and other sightless creatures influenced by light through the skin. On the physical side he quotes the experiments of Terrier, Malakoff, and Widmark. From the beginning to the end, Dr. Bowles says, he found Dr. Hammer's work entirely corroborative of his own, but thinks that Dr. Hammer is not sufficiently impressed with the important fact that reflected light burns much more rapidly than direct.—*Medical Review.*

IS YELLOW FEVER CONTAGIOUS?

T. L. Maddin, M.D., of Nashville, in the *Medical and Surgical Bulletin*, cites his own experience in the epidemic of 1878-79 as proof that by proper sanitation it could be kept down. During that year, on his advice, Bishop Feehan brought sixty-five children from an orphans' asylum in Memphis to Nashville, lodged them in buildings erected on the grounds of the Nashville Asylum, and permitted unrestricted companionship between the two sets of children. This was done, and though three of the Memphis children developed fever, and were at once removed to a fever hospital, the Nashville children were not attacked. This result was obtained by the sanitary precautions carried out, which were as follows:

The Memphis children were brought to a convenient and healthy location on the railroad outside of all contamination; no baggage was permitted only scant wearing apparel, and this burned later; the hair of the children cut short and a thorough washing and shampooing of the entire body with soap and warm water carried out. A train from Nashville with fresh clothes met them and conveyed them to the quarters provided in the yard of the orphan asylum. The Nashville train, with the fresh supply of clothes, did not come within 300 yards of the Memphis train.

Again, in two instances, infants under twelve months of age continued to nurse their mother's milk when they were passing through severe attacks of yellow fever, and sustained no harm. Many illustrations of similar import could be mentioned to prove the contention that yellow fever is not contagious.

Dr. Mallen then summarizes: "My belief and strong convictions are that the etiology of the disease is miasmatic; its genesis is entirely extrinsic to the body; fabrics—more particularly woolen—such as contain stable air, will harbor the germs, and their spores; body clothes, the skin and hair are sources of danger in transporting them; therefore, submit all suspects to thorough sanitation, such as I instituted in the case of transporting the children from Memphis to Nashville. So far as individuals are concerned, the only quarantine that the science applicable to the case demands and justifies admits of only a few hours, even though some may be passing through the stage of incubation and after develop the fever and die of it, there can come no harm to any one; the security would be as complete as though the case was one of malarial fever.

"On the other hand, a trunk packed in an infected atmosphere, such as prevailed in West Tennessee in the summer and early fall of 1878-79, the parties unpacking that trunk, even in a pure atmosphere, are liable to be infected with the air containing the germs and spores that were shipped in the trunk with its contents; if the room is in an unsanitary condition—stationary washstand, contagious bath tub and closet with insecure plumbing, making connection with foul sewers—and the climate is favorable, we will have all the conditions necessary for the genesis of the cause of yellow fever; if the municipality has tolerated the presence of decaying garbage, the refuse of domestic and personal life to accumulate, then we may have the fever either as sporadic, endemic or epidemic, according to the conditions above stated. The principle involved is as sure as planting wheat in a fertile soil with a favorable climate and season; the result is a rich harvest of wheat, which when used as food will be assimilated and make one healthy and strong.

"Every variety in vegetable kingdom has its conditions for its genesis and in its growth and maturity develops an alkaloid that is intrinsic to its life, and may be negative, sustaining or poisonous to human life, and the domain of bacteriology is enrolled in the same book with biology.

"This paper does not propose to discuss the subject of maritime sanitation and quarantine. That question was settled by Doctor Joseph Holt, of New Orleans, and the people of that city should venerate his memory and enroll his name with Jenner as a benefactor, not only of the health and life of its citizens, but also of its commercial property. Modern methods have made it easy, safe, expeditious and without harm to the most delicate fabrics disinfected, destroying all germ life and sterilizing their spores, so as to make it entirely safe to carry their personal baggage with them. Within the past few years experiments with formaldehyde have given much promise for complete and expeditious sterilization of all fabrics. Its germicidal virtue is claimed to be superior to all other articles."

FAVORITE PRESCRIPTIONS.

Ointment for Chapped Hands.

Steffen is credited with the following prescription (*Therap. Woch.*):

Menthol	10 grn.
Salol	20 grn.
Olive oil	20 min.
Lanolin	11 dr.

Externally!

Benzoate of Soda in the Treatment of Grippe.

According to the *News* no drug has given more favorable results in the treatment of *grippe* than benzoate of soda. It may be given in capsule or powder form, the usual dose being 10 grn., three or four times a day. When muscular symptoms are pronounced, the following combination acts admirably:

Sodii benzoas	2 dr.
Salol	1 dr.
Phenacetin	36 gr.

M., and ft. chart No. xii. Sig.—One powder every four hours.

Ointment for the Treatment of Erythematous Lupus.

Dr. Block recommends the following:

Oil of cade Zinc oxide	aa 1 dr.
Soft soap	2 drs.
Vaselin	6 drs.

Sig.—For external use.

The affected parts are covered with this ointment twice a day, and during the night a carbolic mercurial plaster is applied.

Local Anaesthetic.

Le Gerant and Pierre recommend the following for producing local anæsthesia for five minutes.

Chloroform	10
Ether	15
Menthol	1

For Gonorrhoea.

The following is recommended by Duquaires:

Ol. gaultheriæ	gr. xv
Bismuthi subnit	ʒ v
Vaselini liq	℥ iii.

M. Sig.—Inject into the urethra three times daily, after urination, and retain as long as possible.

For the Pruritus of Urticaria.

Chloralis hydratis	ʒ i ℈ i
Cocain hydrochlor	ʒ iiss
Aq. laurocersi	℥ ii
Aq. destillatæ	Oi.

M. Sig.—For external use.

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A NATIONAL DEPARTMENT OF HEALTH.

THE present agitation in favor of the establishment of a national department of public health, with an officer at the head who shall be a member of the Cabinet, has undoubtedly received the support of many physicians on purely sentimental grounds. The argument is advanced that the establishment of such a department would tend toward giving additional prestige to the profession of medicine, in the eyes of the public. It is also urged that the scope of the powers of the Marine Hospital Service, which the new department is to include within its own organization, is too circumscribed, and that the officers of that corps are too young.

The argument, as regards any additional prestige for the profession to be drawn from the establishment of a "department of health" is so vague and futile as scarcely to merit any serious consideration whatever.

It is unfortunately true that the authority vested in the Marine Hospital Service is inadequate for the fullest accomplishment of the best results, but the bill which has been formulated to give existence to the new "department of public health" gives no authority to that department, other than is already vested in the Marine Hospital Service. On the contrary, it provides for concessions to local and State authorities which would make the quarantine service even less efficient than it is now.

The objection which has been raised as to the youthfulness of the Marine Hospital surgeons is based on error, for the average age of the sixteen surgeons in the service is fifty years; of the twenty-six passed assistant surgeons, thirty-five years; and of the nineteen assistant surgeons, twenty-nine years. These men surely are at just the proper age for the best, wisest, and most effective activity.

The Marine Hospital Service offers undoubtedly the best means for the proper safe-guarding of the national health. Their powers are somewhat too circumscribed to permit of obtaining the best possible results, but this will be remedied by the passage of a national quarantine law, such as has been introduced into the United States Senate by Senator Caffery, of Louisiana.

The establishment of a department of public health along the lines contemplated in the bill formulated by the committee of the American Medical Association would be at best in the nature of a costly experiment, and one which there is absolutely no necessity of making, so long as we have at hand in the Marine Hospital Service a corps of men skilled in the special work of quarantine and amply able to administer wisely and effectively such quarantine and health laws as may be enacted. Indeed, there is no better evidence of the desirability of increasing the scope and powers of the Marine Hospital Service than the report of the committee of the American Medical Association in 1896, which reads as follows:

> 1. We may desire and advocate a plan to deprive the Marine Hospital Service of its public health functions, and for the establishment of an entirely new department; or,
>
> 2. We may accept the Marine Hospital Service just as it stands as a department sufficient for our present use; or,
>
> 3. We may endeavor to improve the Marine Hospital Service, and make it a more satisfactory National Health Department than it now is.
>
> It would seem that this last method promises to be the most fruitful of beneficent results; and the question then arises as to the modifications that may be wisely made in the existing law.

The bill providing for the establishment of a department of public health has been occasionally referred to as having been endorsed by the American Medical Association. It is of interest to note that the only formal expression of opinion on the subject yet made by that association is embraced in the adoption of the above report. This report further recommended the appointment of a committee to draft a bill in accordance with the above recommendations. This committee was appointed, but its chairman, Dr. Jerome Cochran, died during the year, and his successor on the committee presented a report at the Philadelphia meeting which embraced the draft of the bill under discussion and which is directly opposed in its tenor to the views expressed in the report in accordance with which the committee was appointed. This bill was presented late in the session; the report of the committee was read, received, and the committee continued, but neither the bill nor report were ever adopted by the association.

A NATIONAL QUARANTINE LAW.

SENATOR CAFFERY, of Louisiana, has passed through a disagreeable experience this summer, which may prove of great benefit to all the Gulf States. After suffering a great deal of personal inconvenience and vexation by reason of the local quarantine regulations, he came to a realizing sense of the vast importance of a proper national quarantine. As a result, he has introduced into the United States Senate a well-drawn and vigorous measure providing for the extension of the quarantine powers of the Marine Hospital Service.

The bill in question makes the National Quarantine as administered by the Marine Hospital Service paramount to all local quarantine boards, so that no ship can enter any port without submitting to the regulations of the Treasury Department, as administered by the Marine Hospital Service; nor can any ship be detained for quarantine inspection after it has been passed by the Marine Hospital authorities. The bill also provides that whenever yellow fever, cholera, plague, or typhus fever has passed the quarantine of the United States, or in any manner any one of these diseases has gained entrance or has appeared within the limits of any State or Territory, the quarantine regulations of the United States, prepared under the direction of the Secretary of the Treasury, shall be supreme and have precedence of State or municipal laws, rules, or regulations. The President is authorized to enforce the same within the limits of any State or Territory, to control the government of vessels, railroad trains, vehicles, or persons within any State or Territory, to prevent these diseases from spreading from one State or Territory to another State or Territory, and to prevent unnecessary restrictions upon interstate commerce.

DISPENSARY ABUSES.

DISPENSARY abuses furnish an exhaustless field for discussion, mingled occasionally with unseemly vituperation for the metropolitan medical press. The country practitioner does not have to suffer from the abuse, nor does he benefit by the legitimate use of the dispensary. He does not see fur-clad women step out of private carriages to ask for free medical advice, but he does see these same women squandering money in frivolous pleasure while ignoring the unpaid doctor's bills, which form so large a part of his unavailable assets. He cannot complain that the well-to-do escape doctors' bills by resorting to the dispensary, but he must constitute himself a free dispensary for a large portion of what might be called the semi-indigent population around him. He may not be accused of unethical utilization of a dispensary position for self-advertising, but he is accused of heartlessness if he declines to ride fifteen miles at night in a snow storm to attend a chronic non-payer. The dispensary evil is a very genuine one, but the city physician must not think that the lot of the country practitioner is wholly a happy one merely because he does not have to contend with the dispensary evil. The country practitioner may not have the dispensary trouble, but he has troubles of his own.

YELLOW fever inoculations have been carried on quite extensively in South America by D. Dominigoes Friere, who reports through the *Comptes Rendus* that the results have been eminently successful. He states that he has treated some 13,000 patients and that the mortality among those treated has been reduced to 0.4 to 0.6 per cent. If these claims are confirmed on more extended experience another of the greatest scourges of mankind will have been robbed of its terrors and will take its place beside smallpox among distinctly preventable diseases.

VIVISECTION is to be restricted in the District of Columbia, if Senate bill 1063 becomes a law. The most strenuous efforts are being made by the anti-vivisectionists to secure the passage of this measure, and it is undoubtedly intended, if it should pass, to make it an opening wedge for a movement to the total abolition of vivisection, not only in the District of Columbia, but all over the United States. The bill is full of dangerous possibilities, and its passage should be vigorously opposed by all scientific men.

A curious bar was set up to the collection of a physician's bill in a case reported by Dr. Gottheil, in the *New York Medical Journal.* The defence was that the adult sister of the patient, the lessee of the house and the head of the household, who had called in the physician, lacked six months of being twenty-one years of age, and was therefore legally a minor. The parents of the patient resided in another state, and the case was thrown out.

Bienwald has arrested the hemorrhage of a small wound on the face of a hemophilic by the application of freshly drawn blood from a healthy woman.

Cimicifuga in small doses, it is claimed, often arrests the sweat of rheumatism.

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THE SURGERY OF TYPHOID FEVER.*

By HUGH M. TAYLOR, M.D.,
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Virginia Hospital, etc., Richmond, Va.

THE evolution of Aseptic Surgery has broadened the scope of operative interference to such an extent as to call for not a few protests against the "furor operativus." Let me urge that conservatism is not always embodied in the idea of masterly inactivity. Surgery has fir its highest ideal to treat directly the cause of disease and death. Asepsis has brought within the province of conservative surgery many conditions heretofore considered beyond its resources. Not one of the least promising fields of usefulness, recently much impressed, is the surgery of complications arising in typhoid fever. (1) In the treatment of typhoid perforations by celiotomy, and suturing the perforation or perforations, we have a last resort in what are practically hopeless cases without operation. (2) In the treatment of the irremediable hæmorrhage we have in celiotomy and ligation a resource which offers a reasonable prospect of doing good. (3) In transfusion for the relief of the effects of profound hæmorrhage and shock, we have a remedial measure of great value. Typhoid fever in all of its phases has until recently, by all except a few pioneer students of the subject, been considered essentially a medical subject.

It is claimed that from one to two per cent. of all the cases of typhoid fever patients have perforation. It is claimed that six per cent. of the deaths from typhoid fever are from perforation. From one to two per cent. of all the cases of typhoid fever then come within the province of operative surgery, and six per cent. of all cases dying from typhoid fever are essentially surgical.

The field of surgery in typhoid fever complications is even wider than that indicated in the treatment of perforations. In the Munich Hospital report of two thousand cases, ninety were attended by intestinal hæmorrhage. Some of these jeopardized life from the profuse bleeding. Most physicians have sat helplessly by the side of patients bleeding to death from hæmorrhage of the bowels. Opium, ergot, mineral acids, and tannic acid are in my opinion poor remedial agents for such a catastrophe, shock or syncope. Nature's potent hæmostatic, contraction and retraction of the vessels is probably the remedy which stays the bleeding.

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*Read before the Richmond Academy of Medicine and Surgery.

Cause and Effects of Hemorrhage.

I recall a case in my practice some years ago in which a young man literally bled to death in twenty-four hours from bowel hæmorrhage. This patient had been in bed with fever only a week. He may, and probably did have, fever a week before he gave up and went to bed. No such case should be left to the resources of nature, aided by such questionable measures as the medication I have mentioned. Laparotomy, and an effort to arrest this hæmorrhage, is as rational as laparotomy for the arrest of hæmorrhage incident to ruptured ectopic gestation. Fortunately we do not often meet with cases of fatal hæmorrhage such as I have described, but if we do meet with them, we will have fewer sins of omission to answer for, if we make an intelligent effort to control a hæmorrhage immediately dangerous in some instances, remotely serious in all, because of progressive anæmia incident thereto. I have heard the statement made that patients often seem better after a moderate hæmorrhage. I know nothing to justify such a statement. Hæmorrhage as a rule results from the separation of a slough in an ulcer; in other instances from the margin or surface of an ulcer devoid of a slough, and perhaps in exceptional instances from an engorged mucosa, all of which conditions point to actual or threatened bowel lesion. If the life of the patient is endangered from hæmorrhage or repeated hæmorrhage, and the danger line is not passed after medication and saline transfusion, open the abdomen. What then? If the bleeding point can be ascertained and compression of the vessels in the mesentery does not control it, then a resection of the ulcer and enterorrhaphy is justifiable. If compression of the mesenteric vessels will control the bleeding, then the feeding vessels should be ligated. As far as I know this practice has never been carried out. It may sound extremely radical. Granting this to be true, you will be fortunate if in your practice you do not in exceptional instances meet with cases so desperate as to warrant heroic practice. Dr. Hunter McGuire seems to have been the first to urge this practice.

It is the family doctor, and not the abdominal surgeon, who will at first have to assume the responsibility in connection with the complications of typhoid fever. This impels me to urge that the surgeon should be called early. I would urge that the wise physician is he who sends for the surgeon early, and the wise surgeon is he who is prepared to operate upon a moment's notice.

The Usefulness of Transfusion in Typhoid Fever.

Before considering the phase of our subject of widest scope and greatest interest, typhoid perforations, let us consider for a moment the field of usefulness of transfusion in typhoid fever. In the shock incident to perforation or hæmorrhage in the acute anæmia incident to prolonged ptomain poison and possibly as a remedial measure in the treatment of the ptomain poison, we have in the transfusion of normal saline solution an agent of great potency. In puerperal sepsis, in puerperal eclampsia, and in surgical kidney and other forms of sepsis, transfusion has been practiced with the idea that lavage of the blood favors elimination of ptomain poison. Upon the same principle, transfusion may be found of value in favoring the elimination of the typhoid ptomain. Certainly in the depression incident to hæmorrhage and shock in typhoid fever its influence for good is often marked. Some months ago this fact was impressed by a case, which occurred in my practice. In the seventh week of fever, after profuse intestinal hæmorrhage, a young woman was apparently dying from exhaustion; was cold and sweating and unconscious from great depression. Respiration, 30 or 40; pulse, 140°, and absent at the wrist. The continuance of life seemed a matter of only an hour or two. Whiskey, strychnia, digitalis, caffein, and nitro-glycerine had been pushed as rapidly as was thought safe, with no perceptible influence for good. A quart or more of saline solution injected in the cellular tissue of the thigh and shoulder became diffused by massage, but apparently was not taken up by the vessels; it certainly produced no appreciable effect upon the heart. Such was the undistended condition of the blood vessels, even after cording up the arm it was difficult to find a vein. Into the open vein the sharp point of a glass pipette of an eye-dropper was fastened by a ligature, and the other end of the pipette was fastened in the end of a long tube attached to a fountain syringe. This quickly improvised transfusion apparatus acted nicely. By the time as much as a pint of fluid had been introduced into the vein the pulse was full and strong, and the introduction of a quart in all, increased the volume and arterial tension until the moribund patient's pulse was as strong as that of any of the attendants. The skin became dry, the color of the face and lips more natural, and the extremities warm. Not much improvement in the breathing was noticed; and while the volume of the pulse was so much improved, its rapidity was not correspondingly decreased. The pulse-rate continued very rapid, and the respiration rapid and shallow.

The improvement after the transfusion lasted five or six hours, at which time the pulse lost in volume until the wrist-pulse was indistinguishable. Transfusion direct was again resorted to with the same encouraging result of increasing the arterial tension and drying the skin, but no effect upon the pulse-rate or respiration was apparent. This last function became more and more embarrassed and was the ultimate cause of death.

My experience in this case impresses me with the belief that we have in transfusion a means of great value in the depression incident to hæmorrhage in typhoid fever, and possibly an adjunct in the depressed circulation resulting from any one or more of the many complications arising in typhoid fever.

In severe hæmorrhage or shock from perforation, transfusion is certainly a safe expedient, easily adopted and a resource of great good. In severe hæmorrhage or shock from perforation, transfuse, but in this instance, as in all cases of hæmorrhage, hæmostasis must rapidly follow transfusion, or else the reaction secured to a large extent by transfusion will empty the saline solution out of the same vessels from which the blood escaped. Transfusion itself is credited with hæmostatic properties. The saline solution stimulates the heart's action, causing the capillaries as well as the large vessels to contract.

The mission of operative interference in perforations from typhoid ulceration should be to limit or prevent local or general septic peritonitis. We best limit peritonitis by preventing its occurrance. The key to the successful treatment of this lamentable condition is an early diagnosis and an early resort to operative measures. My experience with cases in which perforation has occurred warrants the assertion that an early diagnosis is usually made. Within the past month I have seen in consultation two cases in which the symptoms were so plain that a prompt diagnosis was easily made. This was equally true in a case which occurred in my own practice about a year ago. This last was the first I have been called upon to treat, since the possible good from operative interference has been so clearly impressed.

The patient had been sick only a few weeks, the typhoid fever was mild, and convalescence was thought to have set in. Acute abdominal pain and shock were the cardinal symptoms which enabled me to recognize the grave complication, and to urge immediate operative interference. Inevitable death was prognosed without operative interference, and probably a fatal issue in spite of even prompt action. The friends and relatives of the patient refused to sanction the operation. Septic peritonitis was fully developed in forty-eight hours, and impending death caused those who had assumed the responsibility of denying the patient his only show for life to implore, now when it is too late, that the resources of surgery be applied. I did wrong perhaps in yielding to their request. The uninitiated cannot differentiate between an operation performed to prevent septic peritonitis and one done to cure it. The fatal issue is not credited by this class to the want of early operation. Naturally in their opinion the operation is the immediate cause of the death. We should endeavor to educate the people to know that the death in this and allied conditions is due to a continuation of the morbid processes for the relief of which the operation is done. We should never lose the opportunity to impress the idea that an early operation is conservative in its broadest sense. Not to the operation, but to the want of an early operation should be credited the fatal issues.

An operation in a condition which is almost hopeless, and the fatal issue, deters some other cases from being operated upon. It has been my rule to give the patient the benefit of the chance, if it be only one in a thousand. The effect of this policy was seen in a case I saw in consultation a few weeks ago. Unfortunately this last patient lived next door to the one just mentioned, and knew all the circumstances attending his sickness, the late operation and the fatal result. In the midst of a mild attack of typhoid fever perforation took place. Sudden and continued abdominal pain stamped the disease. Operative-interference was advised and refused by the husband of the patient, and refused because he had promised her to do so. A few nights before she had dreamed that perforation had taken place, and that the doctors advised an operation. The effect of this dream was to make the husband promise not to sanction an operation. Doubtless the dream was the outcome of thinking of the fatal case, which had not long before occurred next door to her. This splendid young wife and mother was allowed to die, which she did in forty-eight hours, without an effort to repair the ulcer.

Typical Indications of Perforation.

A third case recently seen in consultation illustrates the disaster of procrastination. A young man in the third week of a moderate attack was taken with the typical symptoms of perforation, i. e., acute pain, shock, etc. The sudden onset of the symptoms, almost like a thunderbolt from a cloudless sky, typifies the condition of perforation. In forty-eight hours diffuse peritonitis, with the usual symptoms of distension, vomiting, depression, etc., was at its maximum, and here was another case, which had been allowed to pass from the realms of possible to that of hopeless surgery. Another instance in which the operation would be credited with death and on account of the septic peritonitis from the contents of the small bowel (always fluid) pouring into the peritonæal cavity, be taken. We should always impress the idea that the patient dies from the disease which the operation seeks to cure, and the idea that the early operation seeks to prevent a disease so fatal to life. The facts in the case were fully explained to the friends of the young man. Only the faintest shadow of hope was held out to them, and it was devoutly hoped that they would elect to let him die without an operation, but they grasped at the last straw, and we were placed in the embarrassing position of operating upon a moribund patient. A section after direct transfusion revealed general fibrino purulent peritonitis, and a small pencil-sized hole in the ileum, twelve or fifteen inches from the ileo-cæcal valve; from this fluid fæcal matter poured whenever the bowel was moved. The suturing, irrigation and provision for drainage with glass tubes and gauze, was the work of a few minutes. The condition of the patient did not warrant the time necessary to disentangle the matted bowels, or to wipe off the abundant fibrinous deposits found extensively covering the intestines. As was to be expected death ensued shortly after the completion of the operation, and the finale added another stone to the immeasurable monument dedicated to procrastination in surgery. With an experience with three recent cases, two of them operated upon but so late that an operation was hardly justifiable in either, and the third case in which operation was declined because of a knowledge of the fatal issue in the first case, it is but natural that I should appreciate the needs of educating the profession and public to appreciate the idea that delay is fatal; and that it is not just to the surgeon, to surgery, or to the patient, for the medical adviser to procrastinate until the case has passed beyond the province of surgical recourse. It is claimed that no condition save a moribund one, contra-indicates operative interference. While this is true as evidenced exceptionally by the recovery of such cases, the clinical picture presented by an operation done to prevent the consequences of perforation is much less horrible than one done to cure such disastrous consequences. Not a few practitioners, having the responsibility of such cases in hand, will excuse themselves for sanctioning delay because of, what I think is a wrong opinion, that perforation may exceptionally occur, and be recovered from by the unaided efforts of nature. I am strongly of the opinion that the supposed instances of recovery were not really perforations into the peritonæal cavity. While every abdominal surgeon is often impressed with the wonderful repelling power of nature, impressed with her almost superhuman power to block by plastic peritonitis avenues of infection, I do not believe she is ever equal to the task of limiting the outpour of fluid fæces from a typhoid perforation. Necrosis of mucosa muscularis and localized peritonitis with an intact peritonæal covering of the ulcer is, I think, not infrequent. Agglutination around the weakened bowel wall of omentum, mesentery, etc., by the plastic peritonitis, is a further sequence, but this morbific condition is not perforation into the peritonæal cavity. Fibrino purulent and septic peritonitis and not plastic is the type of peritonitis incident to contamination by the fluid fæces of typhoid fever. It is a forlorn contest between nature and sepsis incident to a perforation direct into the peritonæal cavity, and the sooner this idea is impressed, the sooner will the surgery of typhoid fever be placed upon indisputable grounds.

Conclusions.

My experience, limited, it is true, while intensely impressing the idea that delay is fatal, is emphatically in accord with those who hold—

1st. That perforating typhoid ulcer can be and should be diagnosed prior to the development of local or diffuse septic or fibrino purulent peritonitis.

2d. That a perforation of a typhoid ulcer into the peritonæal cavity means the discharge of virulent septic contents in quantities far too large to justify the hope of its being circumscribed by plastic peritonitis.

3d. Diffuse septic or fibrino purulent peritonitis with inevitable death, if left to the resources of nature, is the unvarying result of this complication of typhoid fever.

TUBERCULAR PERITONITIS.—In an article on this subject in the Annals of Gynecology and Pediatry, Holmes arrives at the following conclusions:

1. Tubercular peritonitis is a relatively common disease.
2. It is never a primary disease, though it is usually impossible to find the initial focus.
3. Recovery follows laparotomy as a general rule, unless there is an initial focus remaining to keep up the disease.
4. This disease appears in three forms: the exudative form, the dry form and the ulcerating form, and they are recognizable in the order named.
5. Macroscopical examination of the peritoneum is sufficient for a positive diagnosis. The demonstration of microscopical tubercles or the recognition of the bacilli are only confirmatory.
6. Puncture of the abdominal wall for diagnosis or for the removal of ascites and injection of air, fluid or iodoform, is dangerous and should not be practised.
7. Laparotomy, with iodoform gauze tamponade drainage, is the safest and most reliable treatment.
8. Laparotomy should be done as soon as there is a show of emaciation or when a relative diagnosis has been made.
9. A positive diagnosis can never be made before laparotomy.

SOCIETY PROCEEDINGS

RICHMOND ACADEMY OF MEDICINE AND SURGERY.

At the regular meeting held December 21, 1897, President J. N. Upshur presided, and Dr. Mark W. Peyser acted as secretary and reporter.

The election of officers for the year 1898 resulted as follows: Dr. M. D. Hoge, Jr., President; Dr. E. C. Levy, First Vice-President; Dr. A. L. Wellford, Second Vice-President; Dr. A. C. Palmer, Third Vice-President; Dr. Mark W. Peyser, Secretary and Reporter; Dr. W. H. Parker, Assistant Secretary; Dr. R. B. Teusler, Treasurer; Dr. R. W. Nichols, Librarian.

Vomiting of Blood by One-Day-Old Infant.

THE PRESIDENT reported a case the like of which, he said, he had never seen before. On Sunday afternoon, 19th, he delivered a primapara, after an easy labor, of a girl baby weighing six pounds. It nursed heartily and there was no indication of trouble for twenty-four hours, when it threw up blood and colostrum. The history of the parents was unexceptional. Within a few hours after vomiting, there were frequent operations containing large amounts of meconium and blood. The skin and mucous membranes were pallid, the fontanelles depressed, and sutures prominent. He was at a loss to account for the hæmorrhage; but his idea was that there existed engorgement of the liver with congestion of the portal system and hyperæmia of the stomach and bowels. Thus he prescribed calomel, two grains, and chalk, one grain, divided into ten powders, one powder given every hour. This afternoon (21st), the child was getting under the influence of the calomel, and as a result, there was less blood in the last three operations, and the child was progressing very satisfactorily. After mentioning the case to several medical friends who had never seen or heard of such a case, he consulted the "American Text Book on Children," and found reports of several cases with suggestion of just such treatment as he had given.

Fulminant Appendicitis.

DR. GEORGE ROSS said that in the past week, he had had the only case of fulminating appendicitis he had ever seen. The patient was a man, age 21, of feeble physique, night operator of the long-distance telephone. He had had bronchitis and recovered. On the night before his death he seemed perfectly well. When seen at 3 P. M., there was a temperature of 102.5°; pulse, 130; and marked tenderness. At night, temperature was 101.5°, pain diminished, but general condition unfavorable. A consultation was held, with the result that the patient was taken to Virginia Hospital, but died before he could be placed on the table.

No Pathognomonic Symptoms Usual in Appendicitis.

Dr. Ed. McGuire said he had seen a large number of cases of appendicitis, and had reached the conclusion that no single symptom could be relied upon to determine an operation. In the case of Dr. Neblett, there was suppurative peritonitis with a necrotic appendix. He had been improving, and on the evening of his death, was thought to be out of danger; but he was seized with convulsions and in three hours was dead. The urine was loaded with albumen.

Last Monday morning, he saw a young man who had had a cramp the night before while on the train. There was a regular pulse and no fever. On the right side was a little tenderness. The bowels were free, but he had vomited. Thinking it was cholera morbus, calomel was prescribed. In the afternoon, upon making a second visit, was found increased tenderness, with a temperature of 100-5°. Appendicitis was diagnosed, and the patient taken to Virginia Hospital and operated upon the next day at 1 o'clock. A necrotic appendix was found. Recovery ensued.

Dr. McGuire said, in conclusion, that he had again and again seen cases where the symptoms were slight, but the course of the disease bad. He thought if all cases could be operated upon within twelve hours, mortality would be reduced 1 per cent.

Occlusion of Opening Into Caecum Possible Cause of Appendicular Abscess of Fulminant Appendicitis.

Dr. W. T. Oppenhimer observed that in the fulminating form the appendix was always occluded next to the cæcum, distension resulting from accumulation of gas or pus. In a number of cases, the appendix could be cut off and no opening seen; therefore he believed that in these the organ could be taken away close to the cæcum, no escape of pus resulting because of the agglutination. It was possible that a ligature was not necessary in these instances, and not applying one would prevent secondary hæmorrhage. He had observed cases without fæcal fistula, in which the appendix had sloughed off and was floating in pus. Never having seen the point mentioned in any literature, he was of the opinion that it and the question of ligature should be investigated.

Dr. Hugh M. Taylor thought appendicitis capable of furnishing a greater number of surgical surprises than any disease with which he was familiar; and while it had claimed the lion's share of professional thought for the past ten years, we were only upon the threshold of knowledge as regards many of its most important phases. Its etiology was an open question: a terminal circulatory supply; a short mesentery; a structure of feeble resistance; an estuary in the fæcal current often blocked; and an ever-present micro-organism were credited as etiological factors; but we must ascertain more of its causation before we could hope to do anything in the way of preventing it. Ideal surgery was, of course, preventive surgery, and it was to be hoped that future evolution of the subject might attain such an end. Individual and collective professional opinion as to appendicitis—its etiology, symptoms and treatment—presented a succession of acrobatic changes. He thought he was correct in claiming that many more conservatives were becoming radical in their views as to the importance of early operative interference and thorough work whenever the condition of the patient warranted. His experience fully sustained the conclusion that an early resort to operation found the patient sufficiently strong to endure complete work—*i. e.*, strong enough to bear the prolonged anæsthesia, removal of the appendix and pus cavity, unmatting of the bowels, resection of infected omentum, etc. He would impress the idea that an early operation was conservative in that it sought to prevent pus collections and adhesions of the appendix, bowel and omentum, and the serious complication of septic, purulent or fibrino-plastic peritonitis. He contended that at some time in the history of every case of appendicitis, it was entirely a local phlegmon, and this was the elective period for operative interference.

Some of his friends, medical John Jaspers, rarely saw cases of appendicitis, and never met with cases calling for operation. When a practitioner of experience told him he never had torn perinæi, he felt like telling him, "Your eyesight is defective," or "You do not lift up the sheet to look." So when a man told him he never met with cases of appendicitis, he was tempted to urge him to study its symptoms, and was almost willing to promise him acquaintance with a surprising number of cases.

Differential Diagnosis in Obscure Cases.

Typical appendicitis should be as easy to diagnose as typical pneumonia, typical typhoid fever, etc.; but unfortunately, we met with a good many cases which were atypical, and in this class, the differential diagnosis was not always easy. Three conditions in the right half of the abdomen and pelvis notably presented symptoms simulating some one of the clinical types of appendicitis. He alluded to gall-tract and tubo-ovarian inflammations and displaced right kidney with renal or Dietle's crisis. The diagnosis was, of course, easier in men, inasmuch as cholelithiasis and its consequences—cholangitis, cholecystitis, empyema of the gall-bladder and gall-tract colic were so much more frequent in women. Displaced kidney and its effects were likewise more common in women, and usually occurred on the right side. Inflammation and suppuration from tubo-ovarian disease, and that incident to appendicitis, might present symptoms in common, but, usually, the differentiation could be made. The intimate lymphatic and vascular connection between the right broad ligament and the meso-appendix should be borne in mind, as it explained the frequent co-existence of appendicitis and right tubal inflammation. Conditions less frequently and less positively obscuring diagnosis of appendicitis were typhoid fever, ilæus, intestinal indigestion, tubal gestation, gastric ulcer, hysteria, etc. He had at the present time two cases of phantom appendicitis. In both, he was satisfied that the morbid condition existed only in the nervous system. Both patients were able to simulate many of the symptoms of appendicitis, as localized pain, muscular rigidity, etc. He was obliged to anæsthetize one in order to satisfy himself as to diagnosis, while the other spent sleepless nights and anxious days, and upon one occasion implored him to operate, so that he need not endure another such night of agony.

Dr. Ed. McGuire said if Dr. Oppenhimer's suggestions were followed, there would be liability to secondary infection. He had seen fæcal matter in more than one instance in such cases.

NOTES ON HOUSEHOLD DISINFECTION BY FORMALDEHYDE.*

By WYATT JOHNSTON, M D.
Bacteriologist to the Board of Health of the Province of Quebec (in collaboration with D. D. McTaggart, M.D.).

During the past year the use of formaldehyde as a disinfectant has been greatly increased in America, its efficacy having largely become known through the work of Dr. J. J. Kinyoun and Professor F. C. Robinson. It is astonishing how little we actually know of what actually happens in the ordinary routine disinection of rooms by different methods in comparison with our knowledge of what happens under more rigid experimental conditions. It seemed that devising simple and fairly uniform methods of testing room disinfection which would enable it to be done by the ordinary sanitary officials in the regular course of their duties, important information could be obtained which would be of service in making a choice of methods.

I have designed a little outfit for use by the Board of Health of the Province of Quebec for this purpose, in which by having the infected test objects (small bits of rubber bands dipped in bouillon culture) placed in muslin packets of distinctive colors, the degree of penetration of steam or disinfectant vapors can be tested by an unskilled person (a red packet is exposed near source of disinfectant, a yellow packet is exposed far from source of disinfectant, a green packet is covered lightly or placed in a pocket, a blue packet is covered deeply in a blanket roll or in a mattress). The packets to go in an envelope marked with blank spaces for details as to cubic space, amount of disinfectant used, etc., and can be sent by post. The use of colors and a small metal fastening for the packets also enables any bleaching or tarnishing effects to be detected. These were invariably present with sulphur fumigation, never with formaldehyde. During the past year, a good deal of disinfection of elegant private houses has been done by us. No injury whatever has been reported from formalin. In planning the test outfit, valuable advice was received from Dr. W. H. Park (New York). Practically these test outfits were found to answer well. Staphylococcus aureus was the test organism chiefly used. Spore cultures were only employed in case of steam. We found that, owing to the high inhibitory powers of even minute traces of formalin, it was best to neutralize the test objects in excess of ammonia before making cultures, or to allow several hours to elapse.

The desiderata in room disinfection we would rank as follows:

1. Efficiency, especially as to certainty of result under known conditions. The uncertainty of action with sulphur gas is a great drawback.
2. Freedom from injury to the goods treated.
3. Cost, in which there must be included not only the direct outlay for the disinfection itself, but the cost of apparatus, staff, means of transportation, etc. The methods in general use are disinfection by solutions and fumigation by sulphur or formalin, with steam for articles which

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*Read at the Montreal Meeting of the British Medical Association.

require penetration. Preliminary fumigation, so as to disinfect the surfaces of articles to be removed for steam treatment, is a safeguard, but causes delay.

What I have to report at present concerns the use of formaldehyde. As is well known, solutions of this substance are powerful and rapid disinfectants, and the vapor has shown considerable powers of penetration. If not so rapid in its action as steam, it is far more certain than sulphur gas, and has no tendency whatever to destroy goods.

In room disinfection I have chiefly employed regenerators, by which the gas is liberated under pressure from a mixture of equal parts of formalin and 20 per cent. calcium chloride solution. The small apparatus made by the Sanitary Construction Company (New York) has been found on the whole most convenient, though I have tried a number of others. My experience with formaldehyde lamps has been less satisfactory. Their effects seemed uncertain, and a quantity of methyl alcohol vapor passes off unconverted as the draft of the lamp increases. The results as to penetration were relatively more satisfactory when the lamps were used in a small enclosed space than would be expected from the results obtained in ordinary rooms.

We found that it was advisable to use larger quantities of formaldehyde than are generally advised, and our results, at first disappointing, became very satisfactory upon using 1 ℔. of formaldehyde per 1,000 cubic feet or 1 quart wood alcohol for the same space, and prolonging the actual time of generating the vapor to from one to three hours. We notice that others who, at first, recommended smaller amounts, now advise larger ones. Most of those who report poor results with formaldehyde use small amounts of the agent. Those whose results are surprisingly good with minute quantities of disinfectant we find usually employ culture methods, which do not exclude all inhibitory effects.

The cost for private disinfection is not considerable, at the rate of 25 to 30 cents per ℔. per 1,000 cubic feet, and though this would be relatively high in municipal work, it is not at all prohibitory. With these quantities, we succeeded in most instances in securing sterilization of the exposed objects, and of a large proportion of those lightly covered, that is, placed in pockets or beneath the bed clothes or pillows, but in room fumigation, test objects placed inside blankets or inside mattresses were not sterilized. We have to deal in the contents of an ordinary sick room with several different sets of articles. First, surfaces curtains which are relatively accessible to vapors. Secondly, carpets and hangings, which are less accessible. Thirdly, blankets, mattresses, and pillows, which are difficult to penetrate. In order to disinfect articles of the second and third classes in an ordinary room, a great excess of vapor and consequent waste is necessary. By the use of closed chambers, a greater penetration of the vapor can be secured, and a smaller amount is required. The vacuum method of securing penetration does not appear to give the same rapidity of effect that it does in the case of steam. We have been able to secure complete sterilization in two hours of test objects placed in a closely rolled blanket, by using a vacuum of 15 inches followed by an air pressure of 10 ℔s. In this apparatus, however, the steam jacket had to be incidentally heated in obtaining the vacuum, and the action of formaldehyde is known to be increased in proportion to the temperature. In any case, the use of a vacuum does not make penetration a matter of a few minutes, as in the case of steam.

Placing the articles in a cupboard or trunk, and blowing in the vapor usually gave fair penetration, if excess of vapor was used. Pasting up minute cracks does not appear to make much difference. Though no large crevices or draughts should be allowed in the room we found it quicker and less troublesome to generate an excess of the vapor than to paste up cracks. I have devoted some attention to constructing a portable chamber or receptacle suitable for room disinfection. One such chamber, 40 inches by 30 inches by 60 inches, made of galvanized sheet iron was light enough to be carried (with some difficulty) on a stretcher by two men, and could be closed so as to give a vacuum of 2 to 3 inches. This was found clumsy in actual practice, and the saving in time did not permit of its being used in two places on the same day. Out of door disinfection is out of question in a Canadian winter. Recently I have tried the plan of using a tent or canopy with those articles requiring most penetration placed beneath it, spread out on convenient articles of furniture. The gas being conducted under this by a rubber tube gave some increase of penetration, while enough escaped from beneath it to sterilize the exposed surfaces in the room.

My latest attempt in this direction has been the construction of bags which are as nearly as possible air tight or gas tight. The cost does not exceed 5 to 8 dollars for one as large as an ordinary disinfectant chamber, 5 ft. by 3 ft. by 4 ft. By using "enameled duck" and having a projecting flap round the open end so as to be rolled up with a corresponding flap of the cover, the sealing up is fairly good, though capable of improvement in construction. Owing to an unexpected interruption to work, I have not yet had an opportunity of testing this apparatus thoroughly at the time of the meeting, but it appears worthy of trial to see whether the best results are got by blowing in the vapor and by placing in articles which have been sprayed with formalin solutions. Carpets, rugs, mattresses, and pillows can be well sprinkled without being drenched, and placed in the bag, or when the articles cannot stand direct wetting, clothes drenched with the solution can be placed inside. In this way the effects of disinfectant spraying are greatly enhanced, though to what precise extent this may prove useful in room disinfection I am not at present able to say. From the first, I have been strongly of the opinion that a method which permitted of all the articles in the sick room being disinfected without the necessity of removal was very desirable for localities unprovided with larger disinfecting plants and staffs, and that even in cities, economy might be effected by thus doing away with transportation.

With regard to disinfecting solutions, my favorite one is formalin used by means of a pump or spray, as suggested by A. C. Abbott. A ½ to 1 per cent. solution seems sufficient, and the cost of this, though more than that of 1-1000 sublimate, is only about two cents per gallon. The pump used costs a few shillings, and weighs but a few ounces, but apparently answers just as well as the heavy and expensive Equifex sprays sold for the purpose. The public need clearer ideas of the " effective cost" of different disinfectant solutions—that is to say, the cost of a given quantity of solution of effective strength. I think that the adoption of a uniform standard, say, that sufficient to destroy staphylococcus aureus in five minutes, would be a convenient strength for house disinfection. The effective cost of several disinfectants is about as follows, when used in amounts generally required for private disinfection:

Carbolic acid, 1-30, costs 7 cents per litre.

Sublimate, 1-1000, costs ¼ cent per litre.

Formaldehyde, 40 per cent. strength, 1-200, costs 1-3 cent per litre.

Few realize the waste of money involved in the use of carbolic acid. The cheaper grades sold as carbolic acid contain practically no phenol at all. Other things being equal, I think that preference should be given to substances which are not poisonous. I need not here go into the matter of formalin vapors for treating goods liable to be injured by steam or disinfecting solutions further than to say that it is a most satisfactory agent for this work for which we previously had no reliable method. Whether the dust in the walls and cracks are absolutely sterilized or not by fumigation, most sanitarians will agree that the average fumigation suffices to remove the danger of infection from exposed surfaces, as far as can be judged from epidemiological evidence.

NOTE.

Recent reports seem to show that the very conservative estimate of the effective strength assigned to formaldehyde is too low. Thus Le Dentu (*Sem. Méd.*, 1897, p. 315) stated that instead of the 40 per cent. commercial solution being one-fifth as effective as the same weight of sublimate it is really twice as effective in equal quantities. This, if true, would raise the effective strength of formalin and formol to tenfold what is represented in the table.

THE INJURIES OF PARTURITION, THE TIME, METHOD AND REASON FOR THEIR REPAIR.*

By A. H. TUTTLE, M.D., S.B., Cambridge, Mass.

In May, 1893, I was called to Milford by Dr. William J. Clarke, to repair a complete rupture of the perinæum, which occurred in the practice of a neighboring physician one week before. I found the levator ani and both sphincters torn, with liquid fæces coming from the rectum, while pus flowed from the wound. The condition was such as seemed to render primary union impossible, but by means of washing, scraping, refreshing and defining the ragged edges of the skin and mucous membrane and bringing the denuded surfaces into close apposition with buried sutures, the result was perfect with first intention throughout. The long delay after the accident, combined with the condition of the wound and the subsequent perfect result of the treatment, brought up a line of thought which I have since pursued with advantage in the primary repair of the injuries of parturition.

Immediate Repair By No Means Imperative.

The immediate repair of the perinæum has been laid down imperatively as the best procedure, and at present is the practice of competent physicians; in fact, its neglect is considered almost criminal. But no one knows better than the operating surgeon and gynecologist the incompetency of the average obstetrician to make a satisfactory repair of the injuries peculiar to parturition, except where they are of minor degree. Their imperfect results are perhaps due to the indifference for careful technical work, often arising from a tendency to make light of an injury that they assume may cast a reflection on their ability as an obstetrician. The patient is rarely moved from her bed; the parts often only seen by bad light or not at all; disinfection is imperfectly carried out, and the work is faulty; that is, the edges of the skin may be brought carefully into opposition, but no attention whatever is paid to the mucous membrane, the various muscular structures, or the more deeply situated and perhaps most important injuries of the case.

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* Presented to the Section on Obstetrics and Diseases of Women, at the Forty-eighth Annual Meeting of the American Medical Association.

In my opinion a primary repair of the parts requires greater skill and better surgical technique than a secondary operation. If the injuries are extensive, it is worse to do an imperfect operation than to leave the case alone, as it opens up the road for severe infection.

It is not common practice to make an inspection of the cervix until ready to discharge the patient, and primary repair of its injury, although it has been advocated and executed for several years by J. Price, of Philadelphia, is not the usual custom.

If a deep cervical tear is not repaired it is a cause of infection, and a common means of subinvolution of the uterus with subsequent displacement and catarrhal inflammation.

With neglect of the cervix comes also an indifference for the treatment of deep vaginal tears, and in the majority of cases they are entirely overlooked.

Dangers Involved in the Tears of Parturition.

Unless one is in the habit of examining the tears of parturition carefully, they can little realize their extent and the possible dangers they afford. The pelvic cellular tissue and the region of the broad ligaments are exposed to external infection in two direct ways, both of which are common. One is by a deep tear of the cervix passing beyond the cervico-vaginal junction; the other is by a tear of the vagina which extends from a point in the roof or side and runs parallel with the urethra close to the neck of the bladder, to terminate internally near the cervix. These tears are often bilateral, with one side a little greater than the other. I have seen this particular vaginal tear so extensive that it reached the outside of the vagina, where it ended in the prepuce of the clitoris, thus running the full length of the vagina. If an inspection is not made in a proper manner this injury is entirely overlooked, and unless a careful repair is made the wound heals by secondary intention. The injury I believe is one of the most frequent causes of a form of pelvic inflammation represented clinically or by comparatively simple phenomena, but which becomes a source of great after-trouble owing to the adhesions about the ovaries and a tendency to anchor the uterus in an immovable manner and in an unnatural position. In a number of ovariotomies I have found the adhesions so great as to make the removal of the ovaries extremely difficult, yet there was absolutely no sign of tubal disease, and I have been at a loss to account for their development. In most of these cases there was a history of difficult labor and generally the use of forceps. After careful examination of many of these deep tears, through which I have passed my finger into the pelvic cellular tissue as far as the peritonæal covering, I feel that these tears offer the most rational explanation for the adhesion so common about the pelvic organs. The adhesions of the uterus in the vagina so frequently found during the repair of the cervix where the organ is placed high, cannot be drawn down to the outlet but is firmly fixed to one side with a mass of hard scar tissue, are formed from the improper or neglected treatment of these tears. The form of puerperal septicæmia which arises from these tears should be carefully distinguished and the fact recognized that the infection in the peritonæal space is direct and not by the way of or involving the uterus.

The perinæal tears usually extend upward through the vaginal membrane that lines the lateral sulci, are rarely medial, owing to the thickness of the membrane in this region (the posterior vaginal column), and if the tear be bilateral, the corrugated membrane or raphe is raised in the form of a thick flap with the base *upward*. The tear along the lateral sulcus often reaches to a great depth. Emmet has described a tear where this posterior column is torn across in a deeper situation near the cervix and the lateral tears arising from within and extending outward, make a flap of the floor tissues with the base *downward* near the outlet. This flap curls up and heals in the form of a crumpled mass, which from its situation gives the appearance of a rectocele. I have seen but one example of this tear and believe it must be a rare accident.

Where Bladder and Urethra are Involved.

Besides the tears in the vault already mentioned, are those which involve the bladder and urethra. They are very infrequent. The accidents of this sort, which in times past came from pressure necrosis, are now very rarely seen owing to the timely use of forceps. I believe that most of the cases of vesico-vaginal and vesico-urethral fistulæ occurring at the present time are the results of forceps extraction of an occipito-posterior presenting head or breach, although my experience in these cases has been very limited. The perinæum is usually well torn, and there is a median tear of the vagina above involving the deeper organs, which has a clean appearance as if cut by a blade of the forceps. The involuntary and constant flow of urine with every change in position very soon attracts the attention of the patient to the accident, and the physician is informed of it without any great delay.

The skin tear of the perinæum is more or less straight, sharply defined and regular, extending in severe cases from the fourchette or hymenial ring to the mucous membrane of the rectum.

The rectal tears are rarely deep. Both sphincters are at times torn, and in all important lacerations the levator ani is injured. Frequently the sphincters are partly torn from their sheath and appear as a nipple-like projection half an inch in diameter and about an inch in length. There is a temptation to cut off this protrusion of muscle at the time of repair, but I think it unwise; it should be restored intact.

Besides the above tears, which I believe constitutes all that are of any magnitude, there are often innumerable smaller ones like a crack in the tissue, short and superficial, and rarely severe enough to require special attention.

Temporary or Superficial Repairs Decried.

From a practical experience with all the injuries of parturition above briefly described, I believe that I am justified in making the statement, that it is absolutely wrong for the obstetrician to attempt to repair the injuries of a severe labor, where the lacerations are extensive without competent assistance and the proper means at hand as regards instruments, disinfection, etc., or to do the work in an incomplete manner by simply sewing the muscles and outside skin together so as to give a fair temporary appearance exteriorly, which is foul within.

As I know from experience, that the parts can be satisfactorily treated within several days from the time of the accident, then the question of time is no excuse for indifferent treatment, nor the fact that the attending physician is worn out by an exhausting labor and perhaps very nervous about the issue. The fact that a primary repair will prevent a great many conditions which later require operative treatment, often of a capital magnitude, is sufficient reason why one should treat the case carefully from the beginning. The mere fact of a difficult labor condemns the patient to a period of lying-in, which is equivalent at least to the period of repair, and is a period which, in the lifetime of many women, is the most opportune for the treatment of her trouble. It is a positive fact that in many cases the period of convalescence would be greatly shortened by complete primary repair. In consideration of the above facts, I will propose the following deviations from the established custom, as giving a most satisfactory result immediately and as a preventive measure for many of the pelvic troubles of women.

When the injuries of a labor consists of more than a simple tear that does not involve the sphincters, the placenta and blood clots should be expressed from the uterus; a full dose of ergot administered; a pad rung out of bichlorid solution applied to the perinæum; and then the patient should be given time for rest, unless it so happens that every measure for a repair of the parts has been previously arranged, competent assistance is at hand, and the patient is already under the influence of an anæsthetic that was administered during her delivery. If it is a simple tear, a few stitches taken immediately is all that is necessary.

How Long Should a Surgical Repair be Delayed?

The duration of time that the surgical repair should be delayed will depend upon the different circumstances peculiar to each case. At least one hour should be given for the rest of the patient, and for the reason that by this time the full effect of the ergot will be realized, which may be of some use in counteracting any tendency of the anæsthetic to relax the uterus. If the injuries have occurred at night, it will be better to wait until the next day, when there will be good light to work in, and if the obstetrician is incompetent to cope with the case, or his patient is far removed from help, as in the country, it may be necessary to wait longer until the proper assistance is procured. I have been unable to discover any special advantage in the time of operating within the first ten hours after the injury. The retraction of the uterus is greater at the tenth hour than in the end of the first, but a little more care is requisite in refreshening the parts. The repair of the cervix is easier at the end of ten hours.

Preparing for an Operation.

The preliminaries for the operation should be made in a careful manner; antiseptic solutions should be prepared for sterilizing the wound, the hands of the operator and his assistants, and an irrigator should be filled with the same; the instruments should be sterilized; a table covered with clean linen should be arranged where there is a good light for operating; a smaller table for instruments should be placed near it; a Kelly pad, or similar contrivance, with a pail for catching the irrigation, should be set in their proper places, and means for supporting the legs with the patient in a dorsal position should be at hand. For the repair of the multiple injuries of parturition I am in the habit of using animal sutures entirely, kangaroo tendon and fine catgut. These should be perfectly aseptic.

The etherized patient is placed upon the table so that the parts are exposed to good light and the legs are well supported. The hair about the parts shaved off and the skin and vagina are carefully cleansed with soap and water, and finally with a solution of bichlorid. The rectum is dilated and also cleansed in a like manner. Clots of blood, which are usually present in the uterus, should be removed. The parts can now be satisfactorily examined and the exact nature of the injuries determined. The fingers are usually efficient retractors, but metallic ones can sometimes be substituted to advantage. With pressure of the hand of an assistant on the fundus of the uterus the cervix can be readily exposed and the tears, which are usually bilateral, extending toward the region of the broad ligament are easily recognized. They are repaired by closure with an over and over, or an interrupted suture, after scraping the raw surface with a sharp curette to insure union. The suture is exposed on the outside of the cervix, but not in the canal, as it is passed just below the mucous membrane. With the closure of each stitch the blood should be carefully washed away with the irrigator and the corresponding parts adjusted with the help of dissecting forceps. In holding the cervix during repair I have found Pratt's rectal forceps of much help.

The Technique of Repairs.

In closing the vaginal tears there is a simple rule to be carried out: viz., carefully bring together the torn edges of the mucous membrane and muscles that correspond to each other and unite them with sutures firmly and in close apposition, so that the raw surfaces are in contiguity and their exposure along the line of tear reduced to a minimum. This is the principle of the treatment in the case of a simple incised skin wound. The deep tears through the vault can be closed with an over and over stitch taken with a fine ligature, but all the remaining repairs can be easily manipulated and are best treated with buried sutures. If the repair is not immediate the raw surfaces should be scraped clean with the edge of a scalpel or sharp curette. A suture is taken in the tears of the mucous membrane that extend up the lateral sulci, beginning at the deepest point. There is no muscle to be united in this region as many suppose. If the tear is double then use one suture for each tear, which closes the vagina in the shape of a letter W. These sutures are not drawn tight until the other parts are united, because there would be less room for manipulation. The rectal tear is now closed in a similar manner, using very fine tendon and needle, the suture passing only through the muscular coat of the gut. The first suture is taken at the internal angle of the wound and should be placed sufficiently deep that no opening will be left which would admit a leakage of the contents of the bowel into the perinæal wound. This line of suturing is carried to a point just above the junction of the skin with the mucous membrane of the rectum, and is fastened so that it is entirely disconnected from the other lines of suturing. By having each line of sutures entirely separate from the other, should infection occur in the region of one it will not necessarily be transmitted to that of another. The deeper layers of the torn levator group of muscles and the transverse perinæi are now brought into apposition with a figure of 8 sutures and the internal, and later the external sphincters are repaired by simple suturing. As the value of the perinæum depends on the perfect condition of these muscles great care should be exercised to bring the torn edges back to their normal position so as to make a good fibrous union. All of the deep sutures having now been placed, the ends of those that close the tears in the mucous membrane which were left unfastened, are seized and carefully drawn tight. Thus the wound is closed from infection by way of the vagina. If the ends of these sutures are brought out at the upper and outer angles of the tear, in the region of the caruncles then by tying the two ends together the closure of the wound, at the most dangerous point for gaping, is completed in a most thorough manner and at the same time the sutures are fastened. This applies of course to a bilateral tear. There is nothing now left to be done but an apposition of the remaining outer torn portion of the levator ani and transverse perinæi and the union of the skin wound, which is easily performed with two or more layers of buried sutures.

If there has been a tear in the neck of the bladder or urethra, the opening in the mucous membrane of these organs should be closed with a fine buried suture of kangaroo tendon passed by the help of a sound in the urethra and bladder, and with great care that no part of the suture extends out upon the mucous surface. The loose submembranous connective tissue can be gathered up with a line of sutures over the first layer to reinforce the wound from leakage. The vaginal tear is now closed in the manner already described. The repair of the bladder and urethra should be done immediately after that of the cervix while there is yet plenty of room to work in.

After the injuries are all repaired the urine is drawn, parts irrigated and a protective suture is passed just above the lower angle of the vaginal introitus through the labia of either side. The two ends of the suture are tied together, bringing the surfaces of both labia into close juxtaposition above the seat of injury. By thus pinching the two lips together the top of the perinæal wound is greatly protected from the secretions in the vagina, which can not flow over the line of repair, but must rise higher to pass over the protective suture; and in case the nurse is obliged to catheterize, should she depress the inserted instrument, it would be prevented by the double strand of the ligature from bearing down upon and prying open the top of the perinæal wound, one of the weakest points in the repair. This suture can be removed in two or three days and has nothing to do directly with the closure of the perinæal injury. In bladder and urethral injuries a catheter should be passed and fastened *in situ.* It is kept here for three or four days.

Results.

If the case is done in a skilful manner, healing will occur by first intention throughout and there will be no constitutional disturbance of the patient except a slight fever of reaction, which is rarely greater than 100 degrees F. It may be criticised that a technical error would lead to a severe infection with great sloughing and danger where so much buried material is used. I may say that the worse sloughing of the perinæum that I have ever seen was in the practice of a physician who closed the wound with external sutures, the infection coming by way of the vagina. In my own experience I have had but one complete failure and, recognizing it was inevitable by the fourth day, I again etherized the patient, opened up the wound, cleansed it thoroughly and reunited the parts as before. The case healed after the second operation with primary union. In a number of cases where the work was performed under trying conditions, a small abscess formed in the center of the perinæum. This forced an opening and discharged spontaneously, sometimes into the vagina, and at other times through the skin. These cases have all healed kindly, leaving a satisfactory perinæum without complications, but the convalescence was slower. The technique must have been faulty in these cases. My worst cases, including vesical and urethral fistulæ, have all healed by primary union, probably because the greatest care was taken to obtain an aseptic operation. I have never had a failure in the union of the sphincters.

In my earlier operations on the cervix I practiced the introduction of some foreign body into the uterus for the purpose of draining that organ and in cases of secondary repair where there was extensive removal of tissue to help establish a patent canal. I found the custom an evil one in cases where there was simultaneous repair of a complete perinæal location. The cervix in its natural position rests against and is supporting the rectal wall of the vagina, usually an inch and a half to two inches above the introitus. The pressure is received upon the posterior column or raphe, which from peculiar construction is well fitted for the purpose. When the parts are repaired the cavity of the vagina is closely occupied, and any foreign body tends to disturb the natural relation, which in a case of uterine drain produces pressure upon the lateral sulci, where the mucous membrane is very weak and the partition between the lumens of the vagina and rectum thin. In deep tears, a foreign body in the vagina will tend to open the internal ends of the wounds of the rectum and vagina behind the sphincters, making a vaginorectal fistula. This has twice occurred in my practice. In these cases I removed the drain early, as soon as I discovered the accident, kept the vagina clear by douches, and the fistula closed spontaneously. Since giving up this mode of draining I have had no further trouble.

Conclusions.

In my opinion, the obstetrician who to-day boasts that in his practice he has no lacerations of the cervix or perinæum, proclaims to the world his ignorance of this branch of his profession. It is as much the duty of the obstetrician to his patient to see that she is properly repaired, as to see her safely delivered. The public should be educated to the fact that injuries to the soft parts of the parturient canal are often inevitable and that such injuries only cast a reflection on her professional attendant when their after-treatment is neglected. The physician in whose practice a severe laceration of the parturient canal has occurred, can protect himself in no better way from a legal attack on alleged malpractice than by calling in assistants, who serve as witnesses within twenty-four hours of the time of the accident, and repairing properly, or offering to, the injuries which his patient has sustained. There is no better time to repair the injuries of parturition than within twenty-four hours of the time of their occurrence; such immediate repair of the injuries will often hasten convalescence and prevent, in many cases, severe pelvic complications. The obstetrician should be educated to do this part of his work in a more careful and thorough manner. The injuries already sustained by a multipara in previous labors should be an incentive, rather than an objection, for the careful treatment of the lacerations of her present delivery, because a repair of her total injuries can be accomplished at the same time.

CLIMATE OR ENVIRONMENT AS A FACTOR IN THE REPAIR OF NEURASTHENIA AND MELANCHOLIA.

J. M. Taylor, writing in the *Boston Medical and Surgical Journal,* points out a very serious omission in our study of climatology. He says that there is a strong belief prevalent among the profession and the laity alike that climate exerts a marked influence for good or ill upon persons suffering from brain fag, nerve tire, and melancholia. Unfortunately, the writing of climatologic experts has hitherto been directed almost exclusively to the needs of sufferers from pulmonary, asthmatic, rheumatic, or other ailments. He says that there are large numbers of patients suffering from mental depression and the effects of excesses of various sorts who refuse systematic medical treatment, but are quite willing to try a "change of climate," which they often prescribe for themselves. For this class of patients he regards environment and suitable companionship as of more importance than the climate itself; while many advantages can be claimed for radical geographical changes, escape from a cold winter being one of the most conspicuous and popular ones. The warmth and sunlight of some tropical regions afford opportunity for outing which cannot be gainsaid, but it is a question whether the reversal of the season is valuable for those lacking in vascular and nervous tone, for whom cold under suitable precautions is an invaluable tonic. In his paper the author does not offer guides in the selection of a climate, as he recognizes that the data for such are not yet available, but he earnestly suggests that those having experience with the subject will contribute, so that the subject of climatology in the treatment of nervous affections may be put upon a firm basis.

THE PUBLIC HEALTH BILLS BEFORE CONGRESS.

The underlying motive of the various effects to modify the existing national sanitary laws and administration of this country is well expressed by Professor Jacobi, of New York, in a resolution recently adopted by the Academy of Medicine of that city, with a view to renewing its activity in this direction, as a desire for " a centralization under the National Government of the means to protect efficiently the health of the American people against the importation and dissemination of contagious diseases."

Whatever side issues may exist, and whatever personal ambition may be secretly at work, the general sentiment of physicians, of sanitarians, and of the great commercial interests, is that it is the duty of the national government to protect up against the invasion of infection from abroad as well as from armed invasion. And even beyond this, in these days of rapid transit and immense movements of population, when the seeds of a pestilence may be carried across the domains of several states in a few hours, and when, at the same time, the interruption of travel and traffic is so disastrous, it is felt that the interests involved are too vast to allow great lines of intercommunication within our own borders to be at the mercy of the ignorant authorities of every little country town. The events of the past few months have greatly strengthened these convictions, especially in our southern states, which have suffered so seriously from the inefficiency of certain local health authorities and the insane and murderous activity of others. To such a pitch has public feeling been aroused in the city of New Orleans that even the efficient State Board of Health of Louisiana, which maintained a quarantine inspection service and also conducted the sanitary administration of the city of New Orleans during the recent outbreak of yellow fever, and stood up so nobly to its work, has been compelled to bow before the popular storm of indignation and to resign as a body. This feeling has taken shape in the bill recently introduced in the United States Senate by Senator Caffery, of Louisiana, which is directly aimed at both of these evils. The bill is simply an amendment to the law of February 15, 1893, which "granted additional quarantine powers and imposed additional duties on the Marine Hospital Service," and is intended to still further extend those powers and increase those duties. It makes the regulations formulated by the Treasurer of the United States the paramount law of the land as regards both seaboard quarantine and the sanitary supervision of interstate travel and traffic, while allowing the local authorities to execute or enforce the same, " if they will undertake to do so." It authorizes the placing of a national quarantine officer "at any port or place where the Secretary of the Treasury may deem it necessary" for the purpose of inspecting vessels from foreign ports. Its principal object, however, is evidently "to prevent unnecessary restrictions upon interstate commerce." Hence in all its provisions for the control of the movement of vessels, trains, or vehicles it is careful to convey the power not only "to prohibit," but also to "permit" such movements, thus doing away with the vexations and harmful restrictions of local cordons and shotgun quarantines.

There is one feature of this bill, however, which is open to serious criticism. We refer to the amendment to Section 6. This clause might be construed so as to permit vessels which have been inspected and passed at a United States Quarantine Station to disregard and defy the regulations of a state or municipal quarantine station, established for the more complete protection of a port situated further up a stream. In this way the State Quarantine Board of Pennsylvania, for example, would be entirely superseded. The attention of the representatives of Pennsylvania at Washington should be called to the matter, and they should insist on a modification of this provision.

The distinguishing feature of the bill which flies the flag of the American Medical Association, but which was never adopted by that body, is that it proposes to establish a "Department of Public Health." To the ear of the sanitarian this has a very seductive sound. He has long felt that the protection of the public health was one of the great national issues, as well as entitled to recognition as a coördinate branch of government as either of those the chief function of which is the destruction of human life. The bill, however, does not fulfil the promise of its title. It establishes not a true department, with representation in the Cabinet, but merely a commission.

As a rule it may be affirmed that a system or institution which has been developed by the process of growth is more serviceable and has in it more elements of permanence than one which has been artificially constructed on theoretic principles, and this because its provisions have been devised to meet actual emergencies. It is not strange then that the committee to which was assigned the duty of drawing up a bill for the establishment of such a department found that it could not do better than to adopt the provisions already formulated and put in force by the Marine Hospital Service, and to propose that the new department should take into its capacious maw that entire service, surgeon-general, "buildings, offices, officers, laboratories and appurtenances and property of whatever name and nature."

It seems, therefore, to be little more than a change of names which is proposed, with the creation of a few additional salaried officers. We have the thing already. The Marine Hospital Service is in reality the National Department of Health. The dog in the fable lost his bone in trying to seize its magnified reflection in the rippling stream. Let us be careful how we risk the perpetuity of our present tried and practical, although not thoroughly ideal, system in the troubled waters of a congressional struggle. The wiser alternative, as we view the matter, is that suggested by that eminent and well-trained sanitarian, the now lamented Jerome Cochran, Health Officer of Alabama, and then chairman of the very committee which now proposes the bill we have been considering, viz., "to endeavor to improve the Marine Hospital Service and to make it a more satisfactory national health department than it now is."—*Philadelphia Medical Journal.*

LABOR IN MATURE PRIMIPARAE.

De Koninck (*Revue Medicale*, Louvain, October 30, 1897) has compiled an instructive memoir on labor in primiparæ married for some years and relatively mature (twenty-eight years Bidd and Pourtad, thirty-two Ahlfeld). De Koninck gives thirty as the earliest year coming under "maturity," the "*primipares agees*" of French authorities. He sets aside as curiosities certain cases of primiparæ almost "aged" in the English sense of the term, such as Cohnstein's two women aged fifty and Steinmann's woman aged fifty-two. It appears that in a genuine uncomplicated case of delayed impregnation the advent of the catamenia is always found to have occurred late in youth. Out of 401 such cases menstruation was retarded till 20 in 39, till 24 in 4, and till 26 in 1.

As the retarded first pregnancy, abortion, ectopic gestation, twins, and special renal mischief are relatively frequent. Above all, lingering labor is specially common, statistics even exceeding guesses and *a priori* reasoning in this respect. In twelve out of seventeen noted by De Koninck labor lasted from forty to fifty hours, the remaining labors being yet longer; one exceeded ninety hours. Feebleness of uterine contraction is absolute from first to last, and independent of any obstetrical combination. They also cause far more physical and mental exhaustion than the vigorous contractions of a young uterus, and at the same time are more painful.

There are discrepancies in the "pains" seen in mature primiparæ of the same age, probably homologous with the great variations in the age of menopause observed in otherwise normal women. The uterus may be older in one woman aged thirty-five than in another of the same age. The forceps and other obstetrical operations are often required in the mature. Most of the above facts are easily explained. The excess of male infants borne by mature primiparæ (30 per cent.) is a less explicable phenomenon. Hecker considers the predominance of male infants as a specialty of all primiparæ, but Rumpe turns attention to the fact that in a family of children the predominance of males is commoner the further the mother is from her first menstrual period.

Local Feeding for the Cure and Prevention of Gangrene.—Prof. E. H. Pratt, of Chicago, has recently reported a number of cases of gangrene in advanced stages where the happiest results have followed the local application of bovinine. The technique is very simple, the wound being dressed with iodoform gauze saturated with bovinine and a fresh supply of bovinine poured on the dressing every two or three hours. He has also used bovinine successfully as a prophylactic against the occurrence of gangrene when operating on poorly nourished tissues. The results obtained by Prof. Pratt have been confirmed in the hospital work of Dr. T. J. Biggs, Surgeon Director of the Sound View Hospital, Stamford, Conn. Dr. Biggs has had the happiest results in the trial of ulcers and lacerations of the neck of the uterus, in traumatic necrosis of the bone following gunshot wound, in gastric ulcers and in other cases covering a wide variety of diseased conditions.

CLINICAL LECTURE

HOW DIABETIC PATIENTS DIE AND HOW THEY OUGHT TO LIVE.*

Clinical Lecture Delivered at the Tenon Hospital, Paris, France.

By DR. P. LE GENDRE,

Professor Agrégé at the Medical Faculty of Paris; Physician to the Paris Hospitals.

CASES of diabetes are not very rare in hospital practice, as shown by the fact that we recently had two of them simultaneously in our male ward. They are much less common, however, in hospital than in town practice. I have accordingly availed myself of the opportunity afforded by the presence of these two cases in the Barth ward to speak to you at some length on certain peculiarities in the clinical history of diabetes.

In the first place, one of our two patients, as I pointed out to you, presented only a moderate degree of glycosuria. He was a Jew, fifty years of age, obese and a tailor by trade, suffering from the most frequent type of diabetes, viz., arthritic diabetes, so called from its relationship with the different manifestations of the bradytrophic diathesis. Our patient was predisposed to develop this disease both by his race and by his sedentary habits, the Jews, as is well known, furnishing a very high proportion of cases of diabetes. The glycosuria developed insidiously about the age of forty. The patient is but slightly inconvenienced by it and was able to go home, in apparently perfect health, after we had reduced considerably the quantity of sugar passed by means of a diet rather more severe than the one he usually observed at home, and also by a course of alkaline treatment. You heard me, before he left, giving him various instructions as to his hygiene, and telling him that a diabetic individual, even when feeling that there is nothing wrong with him, must be ever on his guard.

Nervous Diabetes.

Our second patient presents an altogether different type of the affection, viz., nervous diabetes, the man being neuropathic and a hard drinker. The glycosuria in his case developed after a rather severe accident with which he met, a fall on the back of the head. He has lost flsh and strength, and excretes close upon 200 grammes of sugar daily, he came to hospital more especially for an attack of balanoposthitis, with phimosis and a disquieting tendency to gangrene. This, however, has been arrested by the careful application of antiseptic measures. The patient has also suffered

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from influenzal bronchitis. You may remember how minutely I auscultated and percussed the apices of his lungs, and inquired about the possible presence of Koch's bacilli in his sputum. I think the man will not leave our wards for a long time yet, seeing that his diabetes is running a progressive, debilitating course. Had this poor fellow been able to live anywhere else, away from our hospital wards, I should have advised him to leave as quickly as he possibly could, considering that he is in great danger here of becoming tuberculous by living in contact with our numerous phthisical patients.

I have done all in my power to protect him from contagion, keeping him in a room in which there are no tuberculous patients. After all, it must be conceded that here, at the Tenon Hospital, with our large windows looking down upon the whole of Paris and admitting plenty of air and light, he is in far less unfavorable hygienic conditions as regards the ventilation of his lungs, than he would have been at any of the more central establishments of the capital.

You have also seen me investigating every now and then the smell of his breath, and the presence or otherwise of acetone in his urine, a diabetic patient with his nervous system so profoundly depressed by the traumatism already referred to, being in greater danger perhaps than any other of developing diabetic coma.

Dangers of Diabetes.

Dangers without number beset the path of the diabetic individual. Death, as I have already told you, is but exceptionally the direct result of the diabetes, being almost invariably due to some complication. It is only in so-called pancreate diabetes that the patient sinks and dies in consequence of. increasing marasmus and denutrition. Like many good authorities, Prof. Bouchard, for instance, I am inclined to refuse to consider as diabetes, the glycosuria of patients suffering from lesions of the pancreas (lithiasic neoplasm or sclerosis). Patients affected with degeneration of the pancreas are destined to helpless decay within the space of a few months, do what we may, and I do not refer to them when insisting on the precautions which diabetic individuals ought to take, in order to escape the intercurrent complications which shorten the lives of the greater number of them.

I am speaking solely of individuals affected with a general disorder of nutrition, in consequence of which their tissues are no longer capable of burning the sugar poured into the blood by the glycogenic function. This nutritive disturbance, which appears to be the result of some inhibition of that function of the nervous system which normally regulates the nutritive metabolism, may be the consequence of some primary lesion in the nervous centers themselves, or possibly one of the forms simply of the general hereditary disorder of the metabolic functions, described as arthritic diathesis.

I am referring to nervous or arthritic diabetes, a morbid entity which, although variable in its degrees, polymorphic in its manifestations, almost invariably insidious in its origin, and remaining long unrecognized by practitioners who are not in the habit of systematically analyzing the urine of all their patients, frequently permits its victims to live for a long time, if they only follow sound medical advice and know how to regulate their life in a certain way. Still, such patients are always on the verge of a precipice, and it is our especial province to warn them both of the nearness and of the depth of the abyss. This is the theme which I propose to develop on the basis of a few cases from both my hospital and my town practice.

Dangerous Nervous Complications Frequent.

A great many diabetic patients die of nervous complications in the form either of coma or of collapse. The proximate cause which upsets the ever unstable equilibrium may be professional or cerebral strain, or some operative or traumatic shock. The following are a few examples of each of these different causes:

One of my masters, a specialist in mental diseases, a prolific writer and a popular lecturer, presented all the outer aspects of the diabetic taint: corpulence, a heavy appetite and habitual thirst. Like so many other medical men, he took absolutely no care of his own health. At one time he suffered from rather obstinate excoriation, and one of his colleagues advised him to have his urine analyzed for sugar; he did nothing of the kind. I never saw any one put so many lumps of sugar in his tumbler of water when lecturing. For a few days he complained of an unusual sense of fatigue, and one evening he went to bed earlier than usual; next morning he discovered that he could scarcely move his legs in bed, his speech had become thick and embarrassed, and he sent for me. I found him lying drowsy, without any expression in his face, with very marked paresis in all four limbs, and a good deal of dyspnœa, without, however, any stethoscopic sounds. I had long suspected that he was affected with diabetes. I at once therefore looked for the chamber pot and took its contents to the nearest chemist's shop; an analysis was made, and showed 400 grammes of sugar. Twenty-four hours later he died peacefully, the coma having made continuous progress.

Death from Shock.

For several years I had under observation another diabetic patient, who professed the most absolute unconcern for my advice; he consulted me, he said, "just to please his family." I had discovered glycosuria in his case by the merest chance: he had come to see me about a fall in the street, which he attributed to want of skill or spitefulness of a cabman, but which, as a matter of fact, was mainly due to gradual paresis of his lower limbs from neuritis. He had on several occasions been thrown down in the same way, without receiving any injury except a few insignificant scratches, and had always been able to get on to his feet again and go home resignedly. One day at last he remained helpless on the ground, and had to be carried to the nearest hospital, and thence to his own house. My colleague, Quénu, was called in, but he could find only some contusions and a few insignificant wounds on the face and limbs; there was no fracture, no dislocation and no abdominal symptoms. The patient had not lost consciousness, but had had an involuntary movement of the bowels. Certain phenomena, however, appeared to me to be alarming, viz., the rather strange indifference of the patient, who appeared to be quite unconcerned as to the possible consequences of the accident, notwithstanding the anxiety of those around him, the coldness of the body (rectal temperature, 35.5° C.), and especially the presence of anuria. Subcutaneous injections of artificial serum were resorted to, but failed to restore diuresis. The pulse soon became filiform, and forty-eight hours after the fall the patient died quietly. This was a case of shock, of collapse, not of diabetic coma.

I have seen yet another case of collapse in a diabetic patient who had received an injury. There was no suppression of urine; the patient fell into a dozing condition, accompanied by complete muscular resolution. The case presented one notable peculiarity: the existence of the glycosuria had been ascertained a few days only before the accident, but no trace of sugar could be detected in the urine from that time to the patient's death.

Results of Proper Hygienic Precautions.

A very intelligent chemist, who occupied a very high rank in his profession, discovered one day, when he was about thirty, that he was diabetic. He was analyzing a sample of diabetic urine when it occurred to him to examine his own for comparison, as a type of normal urine. This resulted in the unpleasant surprise of finding in it a pretty considerable proportion of sugar. He at once began to study the treatment of diabetes, and became convinced of the necessity of leading a special life; in this he was so successful that he was enjoying excellent health at the age of sixty, when I made his acquaintance, although being still glycosuric.

He had not only strictly observed the best rules as to his physical hygiene, but also insisted, during the frequent conversations I had with him, on the care with which he had avoided all causes of moral perturbation; he shunned all nervous excitement and dosed with equal care both his emotions and his pleasures. It is possible, no doubt, to be moderate in one's pleasures, but no man is proof against grief, and a day came when my patient had to battle with sore trials. He at once began to lose ground; the arterio-sclerosis, which had hitherto remained comparatively slight and had never manifested itself either in the heart or the kidney, now gradually revealed itself in dyspnœa on exertion, albuminuria and œdema about the malleoli; he then developed influenza, and the albuminuria, which had been insignificant in the beginning, now became serious. Both the glycosuria and the albuminuria resisted all attempts at treatment by diet and appropriate medicinal agents. The patient, however, might probably have dragged on some time longer, when the situation was changed by the performance of a very trifling surgical operation. During the attack of influenza he had developed an otitis, a frequent complication of this affection, as is well known; the suppuration, although moderate in quantity, had resisted all treatment, and the patient himself asked for some more thorough intervention. An operation was accordingly performed by one of the most qualified specialists, without my being consulted as to its opportuneness. Had my advice been asked, I should have given it in favor of abstention. The same evening the patient fell into a comatose state; I was called in during the night, but he was already dying when I arrived.

I do not wish to draw the conclusion from this fact, as was generally believed before the days of aseptic surgery, that no surgical operation should be performed on a diabetic subject. Quite frequently patients of this kind are successfully operated on for cataract nowadays; others again have borne well amputation of gangrened limbs, opening and draining of abscesses, incision of furuncles. Still, the rule holds good that strictly indispensable operations alone are to be risked, for the issue is always uncertain.

The Weak Points.

The liver, the kidneys and the blood vessels are the weak points in diabetic individuals.

The first of these organs is probably never intact in diabetes; certain pathologists have even considered it as the center of the whole morbid process. In the majority of diabetic individuals the liver is found to be enlarged either from hyperæmia of nervous origin or from hypertrophy of the cells working with increased activity.

In polyphagic diabetes the liver is, in addition, subjected to digestive overwork, and if the food, along with its excessive quantity, is of inferior quality, and if to this is added excessive use of alcoholic beverages, the sclerosis, favored as it is by the defective condition of the whole arterial system, develops without restraint. Cirrhosis of the liver is one of the epiphenomena of diabetes, in the course of which indeed the hepatic organ may come to a stage of incompetence, with consecutive auto-intoxication and its well-known complexus, grave secondary jaundice.

The kidney is overworked by the incessant elimination of sugar, and of the toxins which, in diabetes, arise from the imperfect destruction of nitrogenous substances; its epithelial cells become the seat of hyaline degeneration and of the glycogenic infiltration described by Armanni and Ehrlich, of the necrotic lesions of Ebstein and Straus. Hence, the frequency of albuminuria in diabetes, and the not unusual termination of the disease by an attack of uræmia.

The various changes in the circulatory apparatus take place around the arteritis for the most part. Gangrene from ischæmia is always one of the most serious complications with which diabetic patients are threatened. Endocarditis and pericarditis form more exceptional causes of death. Angina pectoris has, occasionally, been met with.

When the tissues, in consequence of the arteritis, have been put in a state of hyponutrition, the accidental advent of infective germs easily sets up grave complications, which may, in different cases, consist in gangrene of a limb or in septic endopericarditis. The diabetic organism, as a matter of fact, constitutes a favorable culture medium for every variety of micro-organism. The patient must ever be on his guard against infection.

Danger of Tuberculous Infection.

Of all other infections, in densely peopled centers, the tubercular is certainly one of the most dangerous. It invades the organism insidiously, then breaks out and evolves, in the majority of cases, with great rapidity. Not infrequently, the sugar disappears from the urine when the tuberculosis has reached its full development; this is due mainly to pyrexia which activates the various oxidations.

I had under my care last year at the Municipal Hospital a commercial traveler whose history was rather characteristic in this respect. His father suffered from diabetes, and his mother was very obese, as also one of his brothers; he himself weighed 106 kilogrammes. This man, with this distinct arthritic heredity, had, during the Franco-German war, been exposed to extreme emotions, and to these he attributed the origin of his diabetes, the existence of which was first revealed to him by the white spots left by his urine on his trousers. He was polydipsic, polyphagic and polyuric, and for fifteen years he had passed 40 grammes of sugar per liter of urine. Unfortunately, he was not content with quenching his thirst with harmless drinks, but was in the habit of taking as many as twenty glasses of alcohol daily. One day at last his appetite disappeared, his obesity diminished (he lost 40 kilogrammes in one month), his legs grew weak, his sight blurred and his genital powers—which had apparently withstood the influence of fifteen years of glycosuria—were suddenly lost. He now began to have a slight dry cough, followed by expectoration, which was at first muco-purulent, becoming soon after distinctly purulent and nummular. When he came to my wards, he was a confirmed consumptive. The glycosuria and the polyuria had both disappeared. He died shortly after, his tuberculosis having killed him within five months.

This rapid evolution is the rule; still, I can mention a case of arthritic diabetes in which the tuberculosis was prolonged throughout a long period of years. The patient was a general in the army, when I saw him for the first time; he had first suffered from hæmoptysis when a sub-lieutenant, was accidentally discovered to be diabetic in the midst of an active career, and had never exhibited any considerable degree of glycosuria, although he only treated himself in a very desultory manner. Every now and then he had an attack of obstinate bronchitis and of pulmonary congestion, the tubercular nature of which had been established; the lesions probably became sclerosed gradually, and he died at a comparatively advanced age. During the last months of his life, only traces of sugar could be detected in his urine.

Danger from the Pneumococcus.

The pneumococcus may also become the cause of death in certain cases, the pneumonia then evolving in a remarkably insidious way. One of my patients, who only presented a slight degree of diabetes, was carried off very rapidly by an attack of pneumonia, in the course of which he hardly coughed at all and appeared to be unconscious of the existence of excessive dyspnœa, as shown by the number and violence of his respiratory movements. This form of pneumonia may run through its course almost without fever.

The streptococcus and the staphylococcus carry off many diabetic patients by the production of suppuration in all the regions in which furuncles and abscesses are apt to form. One of my female patients had an extremely mild attack of erysipelas on the face; this led to suppuration of the parotid gland. Dr. Hartmann was called in and drained the abscess at once and as thoroughly as he could; yet, the patient died within a few days in a state of profound asthenia.

When the suppuration is located in less unfavorable, more easily accessible, regions, it is yet possible to arrive at better results, even in the case of very glycosuric patients. I treated at the Municipal Hospital an old woman, a cook by profession, diabetic and obese, who had first suffered from an eruption of furuncles in various parts of her body and then developed a large sized furuncle in the lumbar region. When she came into my ward she was passing 185 grammes of sugar every twenty-four hours, and the furuncle had already burrowed under the skin for a long distance. She was for several days subjected to repeated applications of the carbolic acid spray, and at the same time to a regular anti-diabetic treatment, consisting in the daily administration of 15 grammes of sodium bicarbonate, quinine sulphate in decreasing doses of 1½ gramme, then 1 gramme, and ultimately 50 centigrammes, combined with valerian extract. At the end of a week, there was still glycosuria at the rate of 140 grammes, and I requested Dr. Tuffier to interfere locally. The anthracoid mass was freely laid open and the numerous diverticula incised and emptied; moist antiseptic dressings were then applied. I had the pleasure of seeing a rapid change for the better in the appearance of this large wound. The glycosuria was treated successively by sodium arseniate and strychnine; it yielded so remarkably well that the patient was enabled to return home six weeks after the operation, the wound having healed up completely, and the sugar having gone down to 20 grammes a day.

Excess in Drugs and Alcoholic Drinks.

Apart from these dangers which threaten the diabetic subject, there are others against which he can be protected, as for example, the results of the excessive use of strong drink and drugs. The idea is far too prevalent that a diabetic patient, because he requires general tonics, must drink wine and even alcohol freely. There can be no doubt that this is a dangerous practice. I have already stated that the liver is perhaps never perfectly healthy in diabetes; it is usually enlarged and presents a predisposition to congestive attacks; cirrhosis is commonly met with.

Under such conditions, the free use of wine cannot do any good and alcohol is decidedly injurious. Too many diabetic patients are in the habit of taking some of the medicated wines which unfortunately are so popular at present; the ceaseless advertising of these complex combinations of drugs, alleged to arrest wasting or to increase strength, finally carries conviction to the minds of the patients, and they take them without even asking the advice of a medical man; the formulæ are legion and some of them actually bear the signature of professional men. I remember once exhorting one of my patients to give up his habit of taking cognac every day. He thought he would do me a pleasure when he told me, on my next visit, that he had substituted for the pernicious glass of cognac one of a medicated wine, which was at that time sold under a name identical with my own. Of course, I indignantly protested against the imputation that I had anything to do with this compound.

Very few diabetic patients, during the first months at any rate which follow the discovery of their disease, resist the temptation of trying all the substances vaunted as cures for diabetes; the much too frequent result of these trials is to upset their digestive organs. This is all the more to be deplored because the integrity of the digestive functions is, after all, their best safeguard.

Then too the psychology of diabetic patients is peculiar, and well worth studying. Most of them become frightened as soon as the diagnosis is revealed to them; they go about inquiring right and left as to the best remedies, exhaust the list of specialties recommended by their friends or their daily paper; then, when they have been taught by successive deceptions that the diminution of glycosuria, under the influence of remedies, is only temporary, they gradually grow tired, and if, on the other hand, their affection does not prove too troublesome, they finally refuse to submit even to the diet which their physician had succeeded in imposing on them during their first period of terror. Yet, dieting is their true sheet-anchor. I shall therefore pass on to discuss it.

Individual Study of Each Case Requisite.

Before beginning the treatment of any case of diabetes, we must carefully study the patient, not only as to actually existing symptoms, but also as to his habits and disposition. The result of the treatment will depend upon quite a number of influences, distinct from the nature of the diabetes itself. The employment and habits of the patient, the way of thinking of those habitually in contact with him, may constitute so many obstacles to the success of the rules of living laid down by us.

A diabetic patient, wishing to get well or at least to live along with his diabetes without losing ground, must first of all make up his mind to get well or to live, and he must be willing to submit to the obligations imposed upon him by his disease. I have personally known too such patients, who lived thirty years with their enemy; they were both strong-minded men, who had from the very first looked with stoicism at the prospect of a special manner of life. One of them told me that he had at first felt very much disheartened; but he chanced to overhear a conversation between two of his professional rivals, which resulted in a favorable change in his ideas. His rivals, knowing that he was diabetic, considered him as a competitor of no consequence, soon destined to disappear and make room for them. He made up his mind to disappoint them, and began at once to make all necessary sacrifices. He had until then been purely a brain-worker, disliking all physical exercise; he now removed to a house far from his laboratory, so that he would be obliged to walk this distance every day; he began to saw wood and himself to carry up water for his douche every day. The second patient had been drawn, partly by circumstances, partly from his own choice, into a series of law-suits (he was from Normandy); he now began to understand the drawbacks of strong emotions, of the too frequent changes from hope to dejection, and he made up his mind to give up all the suits which he was pressing.

People who are thus capable of completely changing their lives are expectations to the general rule; we might perhaps say that they are wise men. Frequently, however, a practitioner, who has employed his powers of persuasion and has succeeded in gaining sufficient influence on his patient, can bring him to adopt the most essential, at any rate, of the hygienic measures, as follows:

A Regimen for the Diabetic.

To go to bed early; to be up at a fixed and rather early hour in the morning; to rub himself all over every morning before dressing with a horse-hair glove, and, before going to bed, with a woolen glove impregnated with some aromatic tincture; to practice the various methods of hydropathy according to the season of the year, the means of the patient and his particular condition. It is always well to advise the use of cold or tepid baths, lasting from ten to twenty minutes, every two or three days, the water holding in solution sometimes sodium carbonate, at other times sodium chloride or sodium sulphide, according to the special indications supplied either by the general condition of the patient or by the state of his skin. Cold douching in series of twenty days, three or four times a year, is excellent for patients who only pass an average quantity of sugar, and who are still vigorous and capable of good reaction after the douching. In the proper season they should be sent to certain thermal stations, to take a course of hot douching, followed by massage.

Hydrotherapy, in the first place, meets the necessity of keeping the skin in a condition of perfect cleanliness, so as to insure the proper working of its glands and the activity of its circulation, all these conditions being efficacious in preventing the skin affections to whch dabetic patients are exposed, and also microbial auto-inoculations. This cutaneous stimulation also exerts a favorable influence on the nutritive changes, through the agency of peripheral expansion of the nervous system.

The diabetic sufferer must, of necessity, take a certain amount of physical exercise daily in the open air, whenever the weather permits. This exercise must be well regulated; it must be sufficient to activiate the respiratory movements and thus to increase oxidation, but never excessive; whenever exercise passes into fatigue, it becomes injurious in various ways. In the first place, it loads the system with insufficiently oxidized products of retrogressive changes, the elimination of which is slow; hence, the danger of auto-intoxication; diabetic patients have been known to become comatose shortly after some physical strain. Thenervous system, too, in diabetes, becomes rapidly tired, and there is, therefore, a permanent danger of asthenia. Lastly, these patients, both from their arthritic disposition and from their frequent obesity, are apt to perspire profusely with any violent exercise, and this exposes them to colds, wihch readily pass into catarrh of the respiratory organs and into pneumonia.

It is advisable therefore to recommend merely walking and, according to the age and condition of the patient and his apparent power of resistance, open air games (bowling, football), shooting, horseback riding, cycling in moderation; in the last exercises, however, the patient must beware of the temptation to overdo it and of consequent cold. Trousseau had already noticed that, in the shooting season, his glycosuric patients "ceased to drink and to urinate as profusely as otherwise, that they recovered their strength, their appetite, and, in spite of the fatigue, their virile faculties, which had been lost at the very first stages of their affection." Dreyfus-Brissac puts in a word in favor of billiards, and, as regards women, reminds us that Bouchardat used to recommend to them "to perform the hardest part of the housework—to engage in the game of battledoor and shuttlecock—we should now say tennis—playing the piano, dancing, and last, but not least, gardening."

The diabetic patient must take good care not to leave the door open to secondary infections. The hygiene of the mouth implies cleansing of the teeth after every meal, use of antiseptic gargles and tooth powders, rapid destruction of the foci of suppuration, which are frequently set up in them by stomatitis and gingivitis. The erythema and eczema which frequently develop on their genitals, and which are transformed into excoriations by scratching, are prevented by means of minute toilet care and, when already present, cured as rapidly as possible. In a word, no wound, however insignificant in itself, ought ever to be treated lightly.

Likewise, you must make haste to rid the patient of all accidental catarrhs of the respiratory passages, because of the facility with which, in diabetes, they open the way to tubercular infection.

Next comes the capital question of diet.

The Question of Diet.

When beginning the treatment of a case of diabetes—unless the patient has already reached the stageofcon sumption —and when nothing in the analysis of his urine (such as large quantities of acetone or of albumin) justifies any fear of auto-intoxication or of coma, put the patient for ten days on a *test diet*, which must be as strict as possible, so as to make sure of the results which it is possible to obtain with regard to diminution or total disappearance of the sugar.

The diet I have in mind is an exclusive sarco-adipose diet, as formulated by Cantani, or very nearly so. The patient should be allowed to eat nothing but meat, fish, eggs and fat; to drink nothing but water, with a little wine or coffee, without sugar of course. Suppress all feculent and farinaceous foodstuffs, including bread, sugar, and every variety of fruit.

When this severe diet succeeds in doing away altogether with the glycosuria, you may conclude that the case is a mild one, and that it is possible to check its progress without the intervention of any medicinal agents. In the contrary event, have recourse at once to medicinal agencies.

Be this as it may, Cantani's diet must not be continued too long, as there is another which will be more easily borne and is combined in such a way as to introduce into the system the smallest possible quantity of sugar-producing substances, without leading to satiety and disgust from too much uniformity, or to dyspepsia from the use exclusively of quaternary foodstuffs.

Allow then soups prepared with meat broth, yolks of eggs and vegetables. The meat (400 to 500 grammes daily) may include beef, veal or mutton, poultry and game, grains, sweet-bread, pork (not so often), smoked meat or ham; also recommend fresh- or salt-water fish, shell-fish and mollusks (except oysters which are very rich in glycogen), eggs, fat (100 to 200 grammes daily), in particular animal fats, oil and butter, and therefore also preserves in oil, potted pork and goose-liver pasty.

Among vegetables, all the herbaceous greens are allowable, cooked or raw (chickory, dandelion, viper's grass, lettuce, endive, corn-salad, water-cress), artichokes, French beans; more rarely cabbage, Brussels sprouts, cauliflower, sourkrout, salsify. Spinach and sorrel, both of them rich in oxalic acid, were recommended by Constantin Paul, and are still allowed by A. Robin, but Bouchardat forbade them. Asparagus is held in suspicion by everybody. All vegetables must be boiled in water and drained before using (Dreyfus-Brissac). They may be prepared with cream, meat-juice or yolks of eggs.

The dessert may include every variety of cheese, cream without sugar, almonds, walnuts and filberts, olives, pistachio nuts.

Opinions are divided as to the use of fruit. In the slighter cases of diabetes the less sugary varieties of fruit may be tolerated (peaches, apricots, certain varieties of plums, strawberries and raspberries, apples); invariably forbid grapes, cherries, figs, dates and melons.

The Matter of Bread.

The majority of modern authors hold much the same opinion in regard to bread. Ordinary baker's bread, 100 grammes of which give 60 grammes of sugar, is absolutely forbidden in principle. Gluten bread still contains 20 per cent. of starch, and 100 grammes of it yield from 27 to 31 grammes of sugar (Mayet); it is unpleasant to the taste, difficult to masticate, to insalivate and to digest, so that the majority of the patients soon give it up. The almond bread of Pavy and of Seegen is expensive and heavy to digest; Prout's bran bread is also heavy. Echaudé and soja hispida bread contain from 40 to 50 per cent. of carbo-hydrates. Ebstein recommends aleuron which is made up of a vegetable albumin, the so-called aleuronat, mixed with a small proportion of wheat flour; this substance contains from 50 to 60 per cent. of albuminoid substances and a little starch; it can be made into bread and may take the place of flour in the preparation of soups and sauces. It is pretty extensively used in Germany, but hardly at all as yet in France. Here we generally allow from 100 to 150 grammes of boiled potatoes, or, if necessary, 150 grammes of potatoes and 25 grammes of bread-crumb (Robin), or sometimes instead, from 40 to 80 grammes of the crust daily (Dreyfus-Brissac, Dujardin-Beaumetz, Lecorché). The crumb contains a notably less proportion of starch than the crust, but a smaller quantity of the latter is generally eaten.

There still remains to be considered the important chapter of drinks. It has been rightly stated that the diabetic patient must drink to his thirst, because he must ingest a certain amount of liquid to drain out the excessive amount of sugar, contained in his blood. Note, however, that the patient should only be allowed to drink freely of water or of aqueous drinks (infusions of quassia, bark or small centaury, without sugar). He must take wine cautiously, not more than a bottle a day, at the most, because of the propensity of the liver to cirrhosis; it is advisable to forbid alcohol, beer, cider, and of course sparkling sweet wines.

Bouchardat considered that milk was harmful, because its lactose was apt to become transformed into sugar. The Englishman Dongkin, on the contrary, based his cure of diabetes on the exclusive use of skimmed milk. Nowadays the prevalent opinion, as to the part played by milk in the diet of diabetes, is half-way between these two extremes. Charrin and Guilleminot have reported certain cases which would tend to show, not only that the milk diet does not promote glycosuria, but that it rather tends to diminish it.[1] W. Œttinger has published several cases of diabetes in which an exclusive or partial milk diet, which was rendered necessary through some intercurrent complication (nephritis, myocarditis, cirrhosis), brought on also the disappearance or the attenuation of the glycosuria, sometimes temporarily, at other times more permanently.

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[1] Charrin and Guilleminot.—Milk Diet in Diabetes. (*The Medical Week*, 1896 p. 286.)

He is therefore of opinion that the use of milk ought not to be from the very first, and on principle, forbidden, but that the urine of the patient should first be studied as to the modifications brought on by the milk in the amount of sugar excreted. When it does not increase the glycosuria, it will prove of great service in the treatment of certain forms of dyspepsia and, to say nothing about the usefulness of the milk diet to the diabetic patient, suffering from renal lesions or from cardiac complications with disturbed compensation, and also in the cirrhosis of diabetes—this being unquestionable—milk is also, in the case of valid diabetic patients, an article of food which often renders the special diet more readily borne.[2] It would be impossible to improve on these statements.

Such is in its main lines the hygienic and dietetic programme suited to the average forms of diabetes. I must leave out altogether the question of the medicinal treatment of the affection. I believe it to be of secondary importance, and I conclude, with Trousseau, by saying that, with well devised hygienic and dietetic measures, aided by the action of drugs—of a few drugs only—discreetly and prudently handled, we may hope to cure a few, and relieve a great many, diabetic patients.

THE TREATMENT OF DIABETES.

As a result of careful personal observation of a typical case of diabetes, as well as from the quoted experience of others, Monson (*Jour. Am. Med. Asso.*) has undertaken to show that a diabetic should be placed under no different conditions of diet than are granted the healthy individual, and that a rigid exclusion of carbohydrates from the diet is productive of abnormal metabolic changes, which result not only in progressive emaciation and weakness, but also in the production of various toxic bodies, to which the severe cerebral symptoms of this disease are to be attributed. From this study the conclusion is reached that sugar is always present in the blood, and that the absence of carbohydrates from the diet does not cause a disappearance of the blood sugar. Hence sugar must have some other source than the carbohydrates ingested. This other source of sugar is the ingested and systemic albumen, through a process of decomposition. An increased albumen decomposition, due to the rigid enforcement of a purely nitrogenous diet, means an increased metabolism and consequent loss of body weight. Hence the cutting off of carbohydrates from the diet directly produces an increased metabolism. *Vice versa*, the administration of carbohydrates retards metabolism. The diabetic has an especial predisposition towards metabolism. The diabetic has by no means lost the power of burning sugar; therefore sugar must, even more than in health, be allowed, in order to prevent loss of weight and muscular weakness, which may eventuate in one of the natural endings of diabetes, death by asthenia. The abnormal albumen metabolism which is especially produced by a rigid proteid diet, results in the production of toxic bodies, for the action of which the depressed nervous condition of the diabetic is especially favorable. The production of toxic bodies is prevented or retarded by the administration of carbohydrates. Hence, carbohydrates should be administered to the diabetic to prevent the formation of certain toxic bodies, and the servere and often fatal nervous and cerebral symptoms which they induce.

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[2] W. Œttinger, Milk Diet and Diabetes. (*The Medical Week*, 1897, pp. 133-134.

KRYOFIN IN INFLUENZA.—Bresler (*Therap. Monatshefte*, October, 1897) reports the result of the use of kryofin as an antipyretic in sixteen cases of influenza, in some of which antipyrin and phenacetin were also employed for purposes of comparison. Kryofin is a paraphenetedin compound with methylglycolic acid, and hence differs but slightly from phenacetin, which has an acetic acid in the place of the latter. Kryofin is much more readily saponified than phenacetin, and is more speedily and completely acted upon by both the gastric and pancreatic juice; it forms a tasteless and odorless crystalline powder, which is almost insoluble in water. Clinically it is found to prevent a rise of temperature rather than to bring it down; if, therefore, half a gramme be given when a rise may be expected, this is as a rule forestalled. Very few exceptions were found to this, and in the most marked antipyrin was alike ineffectual. One case showed that a gramme of antipyrin acted more rapidly and persistently than half the quantity of kryofin, while half a gramme of phenacetin was quite without result. The subjective condition was much improved by kryofin, and diaphoresis often induced. A dose of 1 gramme (=15 grains) once produced some cyanosis, without subjective discomfort, in a weakly and neurotic woman; the author himself took this quantity twice in a day without a trace of ill-effect. He recommends half-gramme doses as an antipyretic and anti-influenzal remedy, which is to be preferred to equal quantities of antipyrin or phenacetin.

THE TRICYCLE FOR GRADUATED EXERCISE.—Martin Siegfried (*Deut. Med. Woch.*, 1897, No. 27) draws attention to the therapeutic use of the tricycle for active or passive exercises in cases of stiffness resulting from joint affections, and in cases of "weak heart," etc. For this purpose he employs a specially-constructed tricycle, the treadles of which are adjustable, and can be fixed so as to revolve in shorter or longer circuits as required for the individual case. For passive exercise of the lower extremities the tricycle can be pushed or dragged by an attendant, so that the patient's lower extremities are involuntarily moved by the revolutions of the treadles on which his feet rest. Siegfried describes cases treated by his method. In cases of joint stiffness treatment by hot baths may be combined with the "cyclotherapy," and in cases with cardiac weakness effervescent baths, like those of Nauheim, may be employed simultaneously. In some cases the patient's back has to be supported during the exercises by an upright rest fixed on to the tricycle.

SELECTED ARTICLES

A CURIOUS CASE OF VACCINATION.*

By J. H. LAMB, M.B., C.M. Edin.

On November 21, 1897, I was called to see a man and his wife, having six weeks previously vaccinated their child. The parents had during this period been attending to the child's arm, which was discharging some clear fluid, and the vaccination marks were covered with brownish crusts. No definite history of innoculation could be got; but on several occasions the husband had attended to the child's arm before getting out of bed and had then micturated without previously washing his hands. On November 17 he complained of some pain and tenderness in the groin and also noticed some swelling in that region. He discovered some marks on his penis, but did not take much notice of them. On the same day his wife had pain on micturation, but had no vaginal discharge. On the 18th the swelling was more noticeable and the pain and tenderness were much increased. His wife also had a small swelling in the right groin. On the 21st both husband and wife were worse. On examining the husband I found the horizontal inguinal glands were much enlarged on either side and were also painful and tender. On drawing back the prepuce I saw five typical vaccination marks about a week old on the glans penis. The vesicles contained a very small quantity of lymph. There was no urethral discharge. His wife had two vaccination marks, one just inside the labia and the other at the margin of the orifice of the urethra, the latter accounting for the pain on micturition. They seemed to be about the same age as those on the glans penis of the husband. There had been no sexual intercourse since the 14th. On the 22d the conditions were more aggravated in both cases. In the husband's case there was some swelling of the penis, and by the 23d that had become so great that the prepuce could not be retracted, and there was some discharge coming from the glans, but none from the urethra. On the 27th the glands in both were nearly their normal size and all the local conditions in both husband and wife were not so great, although the wife had still some pain on micturition and a slight discharge from the vagina. On the 29th the husband returned to his work and his wife was able to resume her house duties without any discomfort.

The mode of onset and the subsequent history with their complete recovery in so short a time leave no doubt as to the true nature of the case.

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* *The Lancet.*

GUAIACOL TREATMENT OF LARYNGEAL TUBERCULOSIS BY SUBMUCOUS INJECTIONS.*

By JAMES DONELAN, M.B.R.U.I.,
Physician to the Italian Hospital, London.

The indisputably good results from the local use of lactic acid in the treatment of laryngeal tuberculosis have caused that drug to be looked on almost as a specific in this form of the disease. There is, however, some reason to fear that its proved superiority to a multitude of remedies has tended somewhat to exclude from trial drugs generally admitted to do good in tuberculosis affecting other portions of the respiratory system. Amongst these creosote probably stands in the front rank, especially in the form known as guaiacol.

Some years ago I was associated with the late Sir Morell Mackenzie in a series of trials of creosote as a local agent in laryngeal tuberculosis by means of sprays and applications with the cotton-wool holder, and some good results were obtained in cases of superficial ulceration. A hypodermic syringe with a long curved handle was also used for submucous injections, but the difficulty at that time in obtaining a sufficiently pure form of the drug, and more especially the excellent results that continued to follow the use of lactic acid by Krause, Heryng and others, caused these experiments to be abandoned. My attention was again called to this mode of treatment by the publication two years ago of a number of cases of laryngeal phthisis treated successfully by submucous injections of guaiacol by Dr. W. F. Chappell, of New York,[1] who has also invented a special syringe for the purpose. Since that time I have had the opportunity of administering guaiacol in this manner in seven cases, six in which there were marked pulmonary complications and one in which the disease so far appears to be primary. The results have been uniformly satisfactory as regards the local affection. The method pursued was that suggested by Dr. Chappell,[2] with some slight modifications in individual cases. Treatment commenced by thoroughly cleansing the larynx at least once a day by means of antiseptic sprays and especially by a mixture of guaiacol in liquid petrolatum or castor oil with or without the addition of menthol. The effect of these applications was to reduce œdema and in the case of newly formed superficial ulcers to heal them. The larynx was then cocainized, the needle of the submucous syringe guided by the laryngeal mirror inserted in the desired site, and the dose, usually one minim, of pure guaiacol injected beneath the mucous membrane in the floor of an ulcer or into the most prominent part of an infiltration. The local reaction was always slight and easily controlled by rest and sucking ice. On one occasion a patient who had no previous or subsequent hæmoptysis used his voice rather loudly shortly after the injection was made and coughed up small quantities of blood for about half an hour afterwards, but this was the only instance of bleeding following the use of the needle. In no case, however, did any serious inconvenience, much less danger, follow the treatment. The injections were continued at intervals of a week and in two cases for part of the time every four days. In one of these there was a very obstinate ulcer in the inter-arytenoid fold which had resisted all previous treatment by curetting and lactic acid. So great was the dysphagia that the patient though hungry had such a dread of every form of food that rectal alimentation had to be used. After one week's treatment with the guaiacol spray and two injections of one minim of guaiacol in the floor of the ulcer the dysphagia practically disappeared and the ulcer completely healed shortly afterwards. I am indebted to Sir Felix Semon for the opportunity of testing this treatment in another case with somewhat similar history, in which an equally good local result was obtained, and though the patient subsequently succumbed to pulmonary complications the ulcer did not recur.

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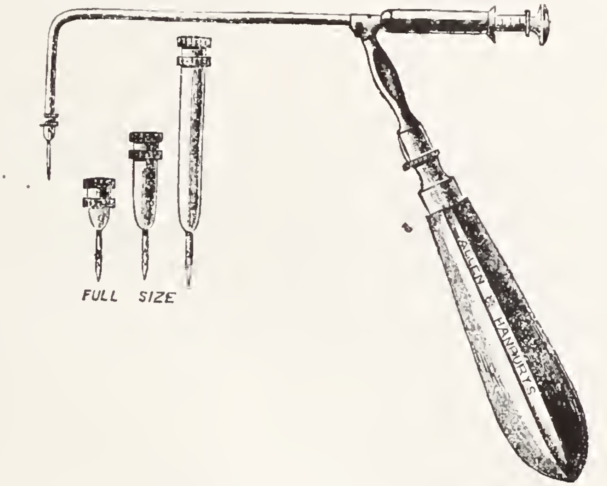
* *The Lancet.*

[1] *Journal of Laryngology*, 1895, p. 355. [2] Lec cit.

Prompt Action of the Injections.

It is in the speedy relief of the dysphagia that the good results of this treatment are most manifest, and in this respect it is far superior to lactic acid, which, especially when associated with the curette, usually temporarily aggravates this distressing symptom. It is not suggested here that spraying and injecting guaiacol for a few weeks is enough to cure every case of laryngeal tuberculosis. There are, however, many cases in which the pulmonary lesions are slight and stationary, and in which much may be hoped from the "self-limiting" character of the disease if the vital force is not too far reduced by persistent cough and dysphagia. These are the cases in which the best results are to be expected from the guaiacol treatment. To be of any use, however, it must be perseveringly out, and where ulceration is at all firmly estab-



APPARATUS FOR SUB-MUCOUS INJECTION IN LARYNGEAL TUBERCULOSIS.

lished the larynx should be carefully cleansed with the spray at least once a day. These measures, which do not require any special skill, will often be found to heal even well-established ulcers. The injections will be found a powerful auxiliary in the case of considerable infiltration or extensive ulceration. They do not appear to be contra-indicated by the presence of even a considerable amount of œdema, as in my experience the œdema was certainly not increased and generally somewhat diminished shortly after the injections were commenced. The diminished blood-supply and consequent lowered vitality of the affected parts may account for the absence of serious local reaction.

As it was found that the original adapted hypodermic syringe was unsatisfactory through want of rigidity and especially through the influence of the guaiacol on the piston leathers, I designed the syringe shown on a reduced scale in the accompanying illustration. It is made entirely of steel and is therefore completely sterilizable. It consists of a barrel mounted on a modified pistol handle, a long steel tube with a rectangular laryngeal curve at the end of which is a thread coarse enough to safely carry the different nozzles. These are three in number and vary in length acording to the depth in the larynx at which it is desired to inject. Each nozzle ends in a smoothly rounded shoulder, which prevents the needle penetrating too far. The needle projects a quarter of an inch from the shoulder, that being found to be the depth necessary to insure retention of the fluid. The special feature of the syringe is that it introduces for the first time, I think, the application of the plunger pump to these instruments. Instead of a piston rod and leathers there is a steel plunger graduated in minims and fitting the barrel with sufficient accuracy to insure the propulsion of fluids. The syringe is filled by withdrawing the plunger and pouring pure guaiacol into the barrel until it fills it and begins to drip from the needle. The plunger is then replaced and pressed in until only the dose required is left in the barrel. The needle having been inserted in the mucous membrane the plunger is pressed home quickly with the thumb. The needle should, if possible, be retained *in situ* for a second or two to insure retention of the fluid.

PYLORIC CANCER.

By T. A. McGRAW, M.D., Detroit, Mich.

The chief object of the paper was an inquiry as to what has been done for relief of malignant disease of the stomach by operative procedures, and whether further efforts in this direction were warranted, as well as an indication in which way the operative technique could be improved upon. Comment is made upon the fact that most physicians look with disfavor on operative interference in malignant disease of the stomach, when they refer patients continually to be operated upon for malignant disease of the rectum and uterus.

To the Germans is due the credit of developing the operations on the pylorus for removal of malignant growths, but their reports show a very high rate of mortality.

In order to expect any result from operative interference an early diagnosis is essential, and operators have concluded that no further advance can be made in the operative treatment of cancer of the stomach until the surgeons secure the cordial and hearty co-operation of the general profession. Dr. McGraw suggests that whenever an adult complains of an indigestion to which he has not been accustomed and which does not yield to treatment, and when no rational cause can be assigned for the malady, cancer should be at once thought of. Advanced age, pain, emaciation hæmorrhage, and a tendency to vomit undigested food is suggestive at once of obstruction at the pylorus. Dilatation of the stomach soon develops, and when fully dilated pulls the pylorus where it can be easily palpated. Absence of free hydrochloric acid and presence of lactic acid is very suggestive, and there is a loss of the motor power of the stomach.

Palliative operative treatment should be resorted to when there is any hope of success by the radical operation of extirpation.—*The Physician and Surgeon*, July, 1897.

A BICYCLE FRACTURE AND DISPLACEMENT OF THE ANKLE.*

By FREDERICK BROOKE, M.R.C.S. Eng.

Since a fracture which has hitherto been of, comparatively speaking, rare occurrence seems likely from its method of production to become more common now that cycling has taken such hold of the public both as a healthful exercise and as an almost indispensable aid to locomotion, a short account of the following accident may be of interest.

A man, about forty years of age, was cycling in damp weather on an asphalt road which was in a greasy condition as well as in a bad state of repair, when, on trying to avoid a hole in the road, he met with a "side slip," his left foot as he fell quitting the pedal and becoming lodged in the frame of his machine, the wheel and pedal continuing to revolve the latter struck his foot while in this position. The following was the condition of the foot and ankle when I saw the case almost immediately after the accident: The foot was displaced backwards and strongly inverted, the outer border pointing directly downwards; the outer malleolus was very prominent and the inner could not be felt satisfactorily, being almost entirely buried; the foot was shortened in front, the tibio-fibular arch being thrown to the front, making a marked projection upon the inner side of the foot. On reducing the dislocation marked crepitus was obtained over the internal malleolus. A careful examination was made along the whole length of the fibula. Pressure applied at various places along the bone ranging from the head to the internal malleolus gave rise to no pain; neither could crepitus be elicited nor irregularity felt along its whole length, though it was difficult to understand how it could have escaped fracture with such a displacement of the foot. Six days after the accident I had the ankle skiagraphed, and on examining the skiagram the internal malleolus was seen to be torn off close to the shaft and to have been replaced in very good position, while an oblique fracture of the fibula just above the malleolus was clearly defined. There being not the slightest tendency either to inversion or eversion of the upper end of the lower fragment the difficulty of diagnosis will be readily appreciated. The patient may be congratulated on having narrowly escaped a compound fracture, since the external malleolus was perilously near making its way through the surrounding tissues.

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* *The Lancet.*

TREATMENT OF ATTACKS OF PERNICIOUS MALARIAL FEVER BY RECTAL INJECTIONS OF COLD SALT WATER.

As is well known, one of the simplest and most practical methods for introducing into the human organism the weak mineral solutions, forming the so-called artificial serums, consists in injecting them into the rectum in sufficiently small doses, so as to facilitate absorption. These injections, when cold, exert a remarkably diuretic action, which is very conducive to the "internal washing" of the system. They may therefore be advantageously employed in cases of febrile toxæmia.

Dr. P. Villanova, in a thesis recently presented to the Paris Faculty of Medicine, describes the good effects which he obtained with this method of treatment in five cases of pernicious malarial fever, with which he met in Corsica, along with another practitioner. In four of the cases, the rectal injections were resorted to from the very first, and the attack terminated within from eight to ten hours, with profuse sweating and emission of urine. Quinine was then given, so as to prevent recurrence of the attacks. In the fifth case, the rectal injections were employed *in extremis,* after the quinine had already failed to act; the case ended fatally.

Dr. Villanova proceeds in the following manner: the rectum is first cleared of its contents by means of a large ordinary enema; then, with a fountain syringe, held at a small distance above the patient, he injects every half hour 150 grammes of a 7:1000 sodium chloride solution which has been first boiled and cooled.

In children, the quantity of the liquid injected must of course be proportional to the age of the little patient.

In cases of hypothermia, and in these alone, the salt water enemata should be given tepid, not cold.—*La Sem. Medicale.*

Age of Parents and its Influence on their Progeny.—Jarosie has brought an interesting subject under the notice of the Director of the Hungarian Statistic Bureau, wherein he argues, from 24,000 carefully investigated cases, that the offsprings of a parent between twenty and twenty-five are likely to be weak and feeble, but between twenty-five and forty-five years strong. The mother has most robust children between twenty-five and thirty-five. More healthy children are born when the mother is about ten years younger than the father—10 per cent. more favorable than when about same age.—*Med. Press and Circular.*

PROGRESS OF MEDICINE

THE SERUM-THERAPY OF YELLOW FEVER.

The *British Medical Journal,* 1897, pp. 1191-1192, refers to a Reuter's telegram from Montevideo, where, on October 13, Professor Sanarelli in a lecture "expressed the hope that serum obtained from vaccinated animals would be efficacious for the cure of yellow fever in human beings." It then proceeds to give an account of Professor Sanarelli's experiments on the horse from which he has obtained the curative serum, as these are detailed in *Il Policlinico* of September 15, and the *Annali di Med. Navale* for September-October, in a paper dated July 24, 1897.

Recent serum from the bodies of those who have died of yellow fever "had no preventive power in respect to the specific bacillus."

Serum from a yellow-fever convalescent, which gave the Grüber-Durham reaction very slowly, manifested a weak protective action in animals in respect to the bacillus icteroides. Two c.c. of the serum used twenty-four hours before that of the virus in a guinea-pig prevented death in most cases; but it failed to do so when injected at the same time as the virus.

Guinea-pigs could be vaccinated successfully only after a long period of from six to eight months.

Dogs bore multiple doses badly and suffered from prostration.

The ox tolerated subcutaneous injections best, without local swellings, but failed to tolerate endovenous injections.

The horse was found most available. In a young and healthy half-bred animal he first injects from 5 to 10 c.c. of the filtered cultures, which is followed by several days of fever. Because of ulcerations and febrile actions, the injections are soon made intravenous (external jugular). The rise of temperature with these is slight, and for but a few hours. But, on increase of the dose, the *malaise* is profound and the injections can be given only at long intervals. After two months of filtered cultures, cultures simply sterilized with ether may be used. After five or six months small doses of the living culture can be used which cause general reaction; after reaction repetition, with slight increase from 5 to 10 c.c. (81 to 162 m.).

His first horse died suddenly, after having been under treatment seven months, and having received 760 c.c. (25.5 oz.) of filtered culture, 2 liters (67.5 oz.) of sterilized culture, and 240 c.c. (8 oz.) of living culture, and without having been bled.

His second horse, after five months' treatment, in which it had received 29 c.c. (1 oz.) of filtered culture, 2,640 c.c. (89.25 oz.) of culture sterilized with ether, and 35 c.c. (1.2 oz.) of living culture, was bled of one liter of blood. This proved to have a weak preventive action in guinea-pigs when 5 c.c. (81 m.) of it were given twenty-four hours before the subsequent injection of a mortal dose failed to cause death. In the next two months every four or five days 35 c.c. (1.2 oz.) of broth culture were inoculated, the reaction lessening as the doses multiplied. On the seventh day after, and for each of three weeks, gelatin-cultures were given endovenously, first one, second two, and third three cultures. The reaction being excessive after the last, the dose was reduced to two cultures, which were given every six days.

When the horse had been nine months under treatment, 500 gme. (16.4 oz.) were bled, and this serum, if given in a dose of 0.5 c.c. (8 m.) twenty-four hours before a mortal dose of the virus, conferred immunity on a guinea-pig and saved guinea-pigs already ill, even when inoculated forty-eight hours after in a dose of 2 c.c. (32 m.).

Therefore, to obtain a good vaccination against yellow fever, these results show it to be more difficult and to require longer time than in the case of other kinds of virus.

This serum, so far used only in animals, the professor thinks will be found to give immunity to human beings, possible to demonstrate only when a more powerful serum is obtained.

Professor Sanarelli gives yellow-fever mortality at from 13 to 90 per cent.

DENGUE, OR YELLOW FEVER.

One would suppose that the recognition of these two diseases, so often companions, would offer no great difficulties, and yet the experience of our Southern friends during the past summer indicates that we have still much to learn. There seems to be but little doubt that cases of yellow fever at Ocean Springs were thought to be dengue, and valuable time was lost in which the epidemic might have been restricted; on the other hand, in Galveston, cases of dengue appear to have been diagnosticated yellow fever, causing much unnecessary alarm and distress.

It cannot be said that our chief writers on the subject have treated this question with the fulness it deserves. It is remarkable that in the works neither of La Roche nor of Bérenger-Féraud, the most comprehensive on the subject, is there a word on this question, and neither Scheube, the writer in Davidson's "Handbook," nor that in Allbutt's "System," refers to the point. Matas, in Keating's "Cyclopædia," and Eugene Foster, in Wood's "Reference Handbook," discuss the question with the fulness it deserves. Not one of the recent text-books of medicine gives the subject more than a cursory line or two.

The truth is that individual cases of dengue may present every feature of yellow fever, even the hæmorrhages and the jaundice, as noted by Rush in 1780. Both these symptoms seem to have been present in undoubted cases of dengue during the recent epidemic. The divergence between the pulse and the fever, so noticeable in yellow fever, may also occur. That good old physician, Peyre Porcher, of Charleston, used to declare that the two diseases shaded insensibly into each other, and that it was a mere question of plus and minus. The milder cases were called dengue, and the severe, yellow fever; so long as the epidemic was light and there was no mortality, it was dengue; when the death-rate became considerable, it was yellow fever.

It is evident that we need some trustworthy blood or bacteriological test, such as we now have in malarial and typhoid fevers. Should the President appoint a yellow-fever commission, it is to be hoped that one or two of its members will attend to certain clinical aspects of the disease, particularly to this very point in diagnosis, which appears at times to offer really serious difficulties.—*Philadelphia Medical Journal.*

ULCERATIVE ENDOCARDITIS SUCCESSFULLY TREATED WITH ANTISTREPTOCOCCIC SERUM.

A further addition is made to the small number of cases of ulcerative endocarditis thus far treated with antistreptococcic serum. Washbourn (*Lancet,* September 18, 1897, p. 707) reports the case of a ward maid, twenty years old, who came under observation complaining of pains in the joints and general malaise. The only significant point in the family history was the death of her father from pulmonary tuberculosis and heart disease. The patient had previously enjoyed good health. Her immediate illness had existed for four days, setting in with pains in the joints, headache, and shivering. She was well nourished and appeared healthy. Especial complaint was made of headache and pains in the knee and thigh. Heart, lungs, and urine were found normal, and there was no swelling or other evidence of disease in any of the joints. The temperature was 100.6° F.; the respiration, 24; the pulse, 104. By the following day the temperature had become normal, and it remained so for three days. At the end of this time it again rose, and for six weeks thereafter the patient suffered from irregular pyrexia, the temperature rising as high as 105° F., and rigors and perspiration were frequent. Heart, lungs, urine, ears, eyes, vagina, and rectum appeared to be perfectly normal. The blood showed slight leucocytosis and slight decrease in hæmoglobin. Some carious teeth were removed, but there was no sign of inflammation in the alveoli. The patient suffered much from constipation, which required the frequent use of aperients. In spite of treatment with quinine and sodium salicylate, she gradually became worse; the rigors were more frequent, the appetite was lost, and pallor and emaciation set in. A distinct diastolic bruit now developed on the left side of the sternum, with its point of maximum intensity in the third intercostal space. It was decided that the pulmonary valve was affected and that the patient was suffering from ulcerative endocarditis. Antistreptococcic serum was injected, the injections being continued daily, with the exception of three days, for nearly nine weeks. At first doses of twenty cubic centimeters were employed, but later these were reduced. Throughout the period of treatment one thousand and thirty cubic centimeters of serum were injected in fifty-nine doses. During the first fortnight of treatment there were only two slight rigors, although the pyrexia persisted. At the end of this time the temperature became normal and remained so for twenty days. The patient now appeared so well that the injections were given on alternate days, but the temperature rising again, the injections were once more given daily. The general condition of the patient began to improve five or six days after the commencement of the injections, and three weeks later she was to all appearances quite well. When she passed from observation she appeared to be in perfect health, although the diastolic bruit in the pulmonary region was still present. At no time did the heart show any sign of enlargement. The only inconvenience noticed from the frequent injection of the serum was slight pain at the sight of injection and an urticarial rash which lasted for a few days.—*Medical Record.*

DIAGNOSIS OF PERICARDITIS.

Dr. F. C. Shattuck contributes (*Boston Medical and Surgical Journal,* July 8, 1897) a valuable article giving the results of his experience with pericarditis. This article is much more than a repetition of the text-book assertions concerning pericarditis. Several points that are new are clearly brought out, and it is illustrated by instructive figures.

There is no disease that is more frequently overlooked during life than pericarditis. The reasons for this are that pericarditis is commonly secondary, that frequently co-existing endocarditis confuses the physical signs, that rheumatism, the common primary cause, is, especially in children, often so slight as to pass unnoticed and for this reason to cause the heart to escape without examination. Tuberculosis, which may be a cause of pericarditis, is so seldom the primary disease that the physician, in tubercular patients, neglects the systematic examination for pericardial involvement. The symptoms, too, are not to be relied upon as suggestive of pericarditis, or in any way distinctively diagnostic. Pain may be slight or absent; there is nothing, ordinarily, about the facies, position, breathing, pulse or temperature characteristic of inflammation of the pericardium. Diagnosis, therefore, must rest almost exclusively upon physical signs, and these may be absent or very perplexing.

Among the practical points brought out, which differ somewhat from commonly accepted views, is the fact that the shape of the dulness produced by the effusion is not commonly pear-shaped or pyramidal; it is simply that of the area of dulness of the normal heart equally extended in all directions. He has never been able to make out any percussion changes in the back that he could connect with a distended pericardial sac, though in several instances he has been able to make out dulness below the left clavicle. The impulse of the heart is not always invisible, but may be both visible and palpable.

Of great importance in diagnosis is the fact that the apex impulse is within the area of dulness. Paradoxical pulse he noted in five out of eight cases. Sudden collapse was frequently noted and is a sign of diagnostic importance.

The frequency with which Dr. Shattuck has met with pericarditis in cases of pneumonia is worth recording. Of fifty-seven cases of pneumonia under his care in the hospital during the past three years, twenty came to autopsy. In thirteen pericarditis was found; in five of the thirteen it was detected during life. In the other eight it was carefully sought for, and the absence of its signs recorded. This is a striking proof of the frequency of its occurrence during pneumonia, as well as of the extreme difficulty of recognizing the affection.

Dr. Shattuck believes in early tapping. He says: "I have never regretted having tapped; I have reproached myself for not having tapped." He can lay down no hard and fast rule as to when to aspirate; each case must be determined on its merits. He has tried various points at which to make the puncture. He is inclined to speak favorably of the left costo-xiphoid angle, the instrument being thrust upward and backward. Here he punctured once only and then after death, but the ease with which a pint of fluid was withdrawn inclines him to think that he should try this point again during life when occasion offers.—*Medicine.*

THE RELATIVE VALUE OF THE TABLET TRITURATE IN COMPARISON WITH LIQUID PREPARATIONS.

The introduction of the triturate for the administration of medicines was a distinct advance in pharmacy because it better prepared the medicament by minute subdivision for solution and absorption. It was also a gain in therapeutics for these reasons, but even those advantages did not render them very popular with the profession. It was not until the discovery was made that triturates could be readily formed into tablets that they became popular preparations, since in this form physicians could readily carry and prescribe remedies which hitherto had been difficult to handle and to measure in an accurate manner at the bedside of the patient. As a result we now have before us, or rather behind us, the accumulated evidence of the value of this manner of administering remedies, and it is important to consider whether the physician and his patient gain as much when the latter receives drugs in tablet triturate form as he does when the older method of dispensing tinctures or fluid extracts was resorted to. Our attention has often been arrested by this question, and has been recently called to it once again by a letter from a subscriber to the *Gazette*, in which he asks whether tablet triturates, compressed or uncompressed, are reliable, and if they maintain their medicinal properties. The reply to this question seems to rest upon the character of the drug with which the triturate is made. If, as in the case of cimicifuga, which is supposed to depend upon a volatile substance for its usefulness, the drug parts with its chief virtue on prolonged exposure, it goes without saying that the triturate is not to be used, and that a well prepared and well preserved fluid extract is preferable. On the other hand the permanent drugs, such as many of the mineral substances used in medicine, can be kept indefinitely in tablet form and yield as good results as ever, as can also many of the medicaments derived from the vegetable kingdom.

The very extraordinary demand for these preparations would seem to indicate that they possess a value far above that due to their mere convenience in dispensing, and seems to answer the question of our correspondent in the affirmative. He also asks for a comparison between the reliability of the average tablet and fluid extract and tincture. The latter preparations certainly deteriorate by long keeping, particularly that most valuable class of products known as fluid extracts, and it may be laid down as a rule, we think, that if the physician will renew the contents of his medicine case containing tablet triturates as often, or half as often, as he usually renews the contents of the bottles holding fluid extracts he need have no cause to fear that his therapeutic results will suffer by the use of the tablet. There are of course greater opportunities for well concealed dishonesty in the preparation of tablets than of liquid preparations, and each tablet if carelessly made may not contain an identical quantity of the drug, but this is to be avoided by the patronage of a reliable manufacturer. Most medicaments had better be prescribed in the ordinary tablet form than in the compressed form which cannot be as soluble. Further than this, many of the drugs which are naturally slow of solution in the alimentary tract are the very ones which require enormous pressure in the machines in order to make their individual particles cohere, and thereby are practically like bullets when swallowed, often passing through the bowel with only their surface dissolved.

Our correspondent questions the usefulness of tablets containing more than one ingredient, and we agree with him, for it is better to give several tablets representing several single drugs, if we seek a combined effect, than one tablet in which the various quantities may not be those desired or which may contain an ingredient entirely useless for the case in hand.

In the case of ergot and other drugs whose active principles doubtfully represent the fluid extract, it is probably best to use the liquid form, but in the case of the greater number of drugs the tablet, if well made, may be relied upon.—*The Therapeutic Gazette.*

EXPERIENCES WITH LEPROSY.

Sticker (*Munch. Med. Woch.*, 1897, Nos. 39 and 40) relates his experience in India and Egypt. He first discusses the pathogenesis of the disease. He states that (1) lepers eliminate with the nasal secretion the leprous bacillus often in extraordinary numbers, and during the greatest period of the disease, and (2) the front part of the nasal mucous membrane, and mostly that covering the nasal sputum, is the place which leprosy first, and perhaps always, attacks. The author has examined 143 lepers from this point of view. In 55 out of 57 cases of tubercular leprosy the leprous bacillus was found in the nasal secretion, and yet in only 2 cases were there any leprous nodules in the nose.

In 45 out of 68 cases of anæsthetic leprosy, and in 27 out of 28 of the mixed form, the bacillus was also found. Only one examination was usually made, and not more than two or three cover glass preparations. In 23 out of 153 cases there was evidence of disease in the bronchi, but in only 14 of these were leprous bacilli found in the sputum. In 10 out of 27 cases in which the exudation from ulcers was examined, the leprous bacilli was found. In 21 cases the bacillus was demonstrated in the secretion of the fauces on 9 occasions. The author thus concludes that the nose is the chief place from which the leprous bacillus is given up, and that in the nose the first effect of the leprous bacillus is produced. In the exceptional cases where no bacilli was found, there were always present the most marked traces of a nasal lesion, which in an active state would produce secretion. The nasal lesions are varied. In the first stage the mucous membrane may look healthy, or at most there is slight increase of a slimy secretion. The first visible change is a simple dry catarrh in circumscribed patches, which eventually present a raw surface. In advanced cases shallow or deep ulcers are visible in one or both sides of the septum. Sometimes there is a hard swelling only, which may be extended to adjacent parts, and produce a nasal stenosis. Perforation of the sputum, or even more destructive changes, may occur, so that the whole nose may be eaten away. The secretion is mucoid, purulent, or of a characteristic slimy character; the last named contains most bacilli.

The author gives a table showing the nature of the nasal lesion in his cases. Leprosy can spread from the nose to other parts by way of the lymphatics, or more rarely by the blood. In the tubercular form the lesions mostly affect the face and alæ of the nose, and even in the anæsthetic form early changes may be seen in the face. The author has found the leprous bacilli in the blood in 4 cases. Finally, he draws attention to the importance of the nasal treatment, not only on account of the patient himself, but also in order to prevent the spread of the disease.

THE SERUM TREATMENT OF DIPHTHERIA.

Belin (*Munch. Med. Woch.*, October 19, 1897) reports upon the cases recently treated in Koht's clinic in Strassburg. A vigorous local treatment was employed previous to the introduction of the serum treatment, but not since. Five hundred and twenty-nine cases of diphtheria were treated in 1896, and of these only 56 or 10.6 per cent., died.

There were among them 286 severe or moderately severe cases, and the mortality among these was 19.6 per cent. (1) Of the 243 slight cases none died. (2) Of 98 severe or moderately severe cases 6 died; 3,000 units of Behring's serum were generally injected in these cases. (3) Of 10 severe septic cases 6 died, but 4 of these were moribund on admission. (4) In 181 cases the larynx was involved, but in 29 of these the disease was relatively mild; 42 recovered without tracheotomy, whereas 132 were tracheotomized. In 99 cases tracheotomy had to be done immediately after admission. Of those not operated upon none died, and among the tracheotomized 44, or 33 per cent., died. The results obtained after tracheotomy showed a very considerable improvement upon past experience; the greatest number of these cases belonged to the severe or severest form of diphtheria. Owing to overcrowding broncho-pneumonia claimed some victims among the tracheotomized.

A distinct diminution in the mortality was observed among children admitted on the fourth and fifth days of the disease, and later. In 2 fatal cases clotting was found in the heart; the author has observed 4 such cases in all since the introduction of the serum treatment, but never before. The effect of the serum treatment was undoubtedly favorable. The beneficial action on the local lesion was obvious. In diphtheritic croup the signs of stenosis disappeared much more rapidly than formerly. The general condition of the patient quickly improved, but the good effect on the pulse and temperature was not so obvious. The serum treatment only failed in cases of the severest sepsis, but the author is convinced that even here recovery is not impossible if the treatment be commenced early. Perhaps the doses given were not always large enough.

No unfavorable result could be distinctly attributed to the serum treatment except the rash. Some careful observations were made upon the appearance of albumen in the urine and upon an increase in its amount; the idea of the serum exercising some effect on the kidney could not be definitely excluded.

A skin eruption was seen in 2.8 per cent. of the cases. In 6 cases it resembled scarlet fever, in 5 urticaria, in 1 measles, and in 3 a polymorphic erythema. The presence of a scarlet fever epidemic made the diagnosis between a scarlet fever and a serum rash at times difficult. Post-diphtheritic paralysis would appear to be more frequent since the serum treatment was introduced; here it was present in 20 out of 529 cases. Relapse is also more frequent; it was noted on 4 occasions. The above evidence, distinctly in favor of the serum treatment, is the more important as the first experiences of the treatment in this clinic did not speak much in its support.

TINCTURE OF MYRRH IN DIPHTHERIA.

Dr. Stroll, writing in the *Allgemeine Medicinische Central-Zeitung*. very strongly recommends tincture of myrrh in diphtheria. The mixture he uses is composed of tincture of myrrh, 4 parts; glycerin, 8 parts, and distilled water to 200 parts. This is given very frequently—every hour or even every half-hour in the daytime and every two hours at night, infants up to the age of two taking a large teaspoonful (seventy-five minims), older children double that quantity and adults three times as much. This is continued until the membrane has nearly disappeared, when the doses are only given every two hours. After all the membrane has gone the treatment is continued for a couple of days, the interval between the doses being increased to three hours. This, of course, is with the view of preventing any recurrence. Usually the fever and lassitude disappear in twenty-four hours, so that a child may frequently be found within that time sitting up in bed playing. He says that there does not seem to be any need for local treatment, but in the case of older children and adults a gargle containing one-half per cent. resorcin may be employed every hour or oftener in the daytime, and where it is desired the tonsils may be painted every hour with the tincture of myrrh undiluted. Where the larynx is involved Dr. Ströll prescribes the myrrh and glycerin mixture in an inhaler or spray to be used every half-hour. By the employment of this method Dr. Ströll states that he has only lost one case out of eighty and he has collected reports from several other practitioners in various parts of the world who have treated altogether 182 cases with 22 deaths. No mention, however, is made in his own or in the other cases of bacteriological verification of the diagnoses. The *rationale* of the efficacy of myrrh is supposed by Dr. Stroll to be that this drug increases the phagocytic elements in the tonsils.

OFFICE BORES.

It is a general belief that the poor doctor is always overjoyed when a patient, no matter of what kind, enters his office to swell his coffers. The number of bores that constantly beset him and tap his energies through the exasperating conduits of long and uninteresting accounts of trivial ailments is never taken into account. Aside from this strain of self-control and the enervating influences of smiling dissimulation, there is a special harm to the victimized adviser's sympathies in the engendering of a retaliatory unconcern in the patient's present condition and an indifference to its final ending. If perchance there is a sudden and unexpected interruption of all the symptoms usually designated heart failure, there comes a feeling of complacency in his contemplation of the obituary notice of the sufferer, which promptly settles all old scores and places the lucky survivor on the high plane of becoming resignation to the decrees of a kindly fate. Time is the only thing that must tell in such a race with the inevitable.

In the meanwhile the tales of woe must go on. The uprisings and downsittings must be noted by urination at night and defacation in the morning. It is comforting for the innocent professional victim of such constant watchfulness to realize that at such times he is always kept in mind. The urinary bottle with its daily tribute is ever ready to offer its suggestion as to what has been done and still must be done so long as the visits continue. Each receptacle marshals itself in the solemn waiting row of similar odorous companions ruthlessly consigned to dilatory neglect, and the effectual corking of its contents is an implied revenge on the ever-ready fluency of the generous distiller. All such patients mean well, and so does the consultant who naively declares, after emptying the bottle, that "nothing was found" in the specimen.

Then comes the furtive young man, with wavering focal concentration, weak lip, and pasty palm, whose manly substance is tapped in the unguarded hour of sleep, and who wakes only to find that all is gone. Even this may be tolerable in comparison with the livelier and more ambitious youth, who voluntary courts the pang of repentance in his more progressive ventures in the highways and byways of forbidden pleasures. What is lacking in the effusive mucosity of one is more than made up in the other. The miserly mournfulness of the spermotorrhœic is duly offset by the generous prodigality of the gonorrhœic. On the principle of easy come and easy go, the virus is scattered in the office of the doctor, on his carpet, chair, paperweight, doorknob, and towel, with a zeal that is grimly suggestive of a better cause. The tear of pity, if it ever comes for the oozy sufferer, can never be safely wiped away by the hand that has shaken his. And lastly, who does not see the young and confiding unmarried female, who has caught cold by temporarily sitting on picnic grass, and who tells the old, old story of a deferred catamenial hope that maketh more than one heart sick.

Or worse than this, how often does the casual and plausible youth mock the claims of an ordinary credulity when he confidingly asks, on behalf of a dear and absent friend for the pill that will do the business and end anxiety?

Think of the poor doctor who must be made to believe it all,and sympathizingly play the usual fool besides. "Next—come in, please." —*Medical Record.*

A NEW MECHANICAL TREATMENT FOR PHTHISIS.

Jacoby (*Münch. med. Wochenschrift,* 1897, Nos. 7 and 8), starting from the fact that phthisis affects first those parts of the lungs worst supplied with blood, argues that the course of the disease may be favorably influenced by improving the flow of blood to the apices. He considers that the deficiency in blood of these parts is largely to be attributed to the influence of gravity, and that its ill-effects result from the absence of the natural protective mechanism, the blood containing alexines and similar necessary bodies. The erect posture is thus favorable to apical phthisis, which is commonest in man and monkeys; similarly, the longer the chest the greater the resistance to the entry of blood into the apices, and the consequent liability to tuberculosis, which is also favored by the sitting posture.

It is curious that kyphosis, although usually of tuberculous origin, leads to pulmonary congestion, and is hence but rarely associated with phthisis. The author's object is to determine the flow of blood to the apices, just as Bier determines it to the region of tuberculous joints; to this end he employs two methods, a thermo-mechanical and a postural, the latter with the object of effecting what he calls an "autotransfusion." The apparatus for the former consists of a bath bed in which the patient lies, so that the shoulders and consequently the apices are the most dependent parts. The thorax is enclosed in a hermetically sealed india-rubber vest, under which hot water is allowed to play through eight tubes, four in front and four behind, connected with a pump. The shoulders and loins are supported by air cushions. The water is passed by a pipe back to the heating apparatus, by which it is maintained at a constant temperature. This is at first 30° to 35° C., but is gradually raised to about 45° C., which is found to give the best results; two baths, each of thirty minutes' duration, were given daily. The immediate results were greater comfort and ease in respiration and expectoration; the headache which followed in some cases was due rather to the position than the treatment, which the author regards as conditioning a hyperæmia of the lungs, particularly the apices.

After the hot effusion is over, the patient gets up, is rapidly and thoroughly dried, and his shoulders are wrapped in a Winternitz's moist bandage; he then undergoes the recumbence cure, or autotransfusion. This consists in being supported with the legs and body elevated above the chest for two periods of three hours each per diem. By a hammock device this part of the treatment can also be carried out during sleep.

By these combined treatments Jacoby claims that better nutritive conditions are established in the pulmonary parenchyma, further wasting is checked, the tubercle and other bacilli are destroyed, and a more perfect moistening of the bronchial mucous membrane effected. Hence the sticky secretion becomes more fluid, and expectoration much easier. The raising of the legs above the thorax must be gradually increased; hæmoptysis is almost the only contraindication to the treatment. The author gives figures illustrating the apparatus made for him for its performance. Of twelve cases treated by Nahm in this way at the Rupertshain sanitorium, two could not continue with it (probably from it being pushed too rapidly), but the others were all improved, though the changes in their symptoms and physical signs varied very considerably. The author concludes his paper with a suggestion that the prophylaxis against phthisis might be greatly aided by a periodical systematic examination of the population; he states that there art at present 1,200,000 sufferers from phthisis in Germany.

THE INFLUENCE OF IRON ON THE SECRETION OF GASTRIC JUICE.

Buzdygau (*Wien. klin. Woch.*, 1897, No. 31) has sought an experimental solution of the question why all chlorotic and anæmic patients do not bear iron equally well, and why in some cases the metal gives rise to so much gastric disturbance as to render its use impossible. He compared the digestive powers of the stomach in a large number of cases before and after the administration of iron; he made in all 333 observations on sixteen patients, mostly anæmic and chlorotic, and found that the cases fell into three groups. The first comprised three patients in whom the secretion of gastric juice during digestion was normal; in them iron had no influence on the formation of free HCl. The gastric juice digested albumin in two to six hours *in vitro;* iron was found in the gastric contents two hours after administration, but had entirely disappeared in seven. The second group, of seven patients, suffered from gastric insufficiency, both secretory and motor. In five, all with dilated stomachs, the output of free HCl was uninfluenced by the iron; where no free HCl was present albumin was not digested in twenty-four hours. In the remaining two patients the administration of iron caused an increase in the amount of free HCl, which appeared in from two to four hours; iron could still be demonstrated in the stomach six hours after administration. The last group consisted of six patients with increased secretion of gastric juice. In every case the use of iron increased the production of free HCl, which reached its maximum in the fourth quarter of an hour after the administration. Digestion *in vitro* was vigorous, and iron was found in the stomach six hours after it had been given. The author concludes that in cases in which the gastric contents are already too acid during digestion, iron accentuates the hyperacidity of the gastric juice and aggravates the dyspeptic symptoms which are usually present in anæmia and chlorosis. In these cases the digestive affection must be set right before iron is administered. In cases, however, in which the secretion of HCl is normal or diminished, iron may often do good service in stimulating the gastric mucous membrane to secretion. All the experiments tend to show the value, indeed the necessity, of ascertaining the condition of the stomach before prescribing iron.

ASEPSIS IN DAILY LIFE.

A measure looking toward greater cleanliness, which means, of course, less disease, is now being pushed forward with some degree of success. This is the measure to prevent the floors of cars and the sidewalks from being used as spittoons. The degree of success that shall attend this movement is a gauge of the civilization and refinement of the present day.

Beyond this, however, there is still an advance step that can be taken that would be wonderfully conducive to asepsis in daily life, and hence cause a still greater lessening of disease, writes Julia W. Carpenter, M.D., in the Woman's Medical Journal. It is a simple but a very radical measure.

A handkerchief should be made of some inexpensive material, and when once used, it should be cremated.

This should be the universal law for sick and well. Think of the chronic catarrhs, the sore throats, the decayed teeth and untidy mouths, the bad colds of well people—so-called—and the handkerchief the receptacle of the evidence of all this.

All these discharges should be burned and not be carefully put away in fine linen to await a turn in the laundry. That simply gives this effete matter the opportunity of being carried out into the sewers and rivers and returning again in the drinking water. As many a little makes a muckle, it is easy to see what pollution of water could in this way be prevented.

Handkerchiefs could be made of some material so inexpensive that their use and destruction would cost no more than their laundering. If the expense was something more, however, it would be nothing to the expense of sickness. Cheap handkerchiefs to be burned would greatly facilitate the carrying out of the measure to prevent expectoration in cars and on sidewalks. The handkerchief could be the receptacle and its destruction would be such an advance toward aseptic living that there would be a great decrease in the number of influenzas, catarrhs, and especially in contamination from tuberculosis.

PROTARGOL, A NEW REMEDY FOR ACUTE GONORRHOEA.

NEISSER (*Centralbl. f. Dermatol.*, October, 1897) regards the ideal treatment of acute gonorrhœa as one by which the gonococci are killed without the mucous membrane being affected, or, as far as possible, the inflammation and suppuration increased. He considers the best method to be injection, reserving irrigation for cases presenting special difficulties. He states that the best substance for this purpose with which he is acquainted is protargol, a proteid-containing silver compound. This contains 8.3 per cent. of silver, is readily soluble in cold and hot water, and is not precipitated by albumen, dilute sodium chloride, or hydrochloric acid solution, or caustic soda.

Ammonium sulphide darkens the solution, but does not precipitate; strong salt solutions precipitate, not silver chloride, but protargol itself.

It has a remarkable penetrative power, and excels the best of previous compounds, argentamin, in that, although containing more silver, it can be used in solutions up to the strength of 1 per cent. without causing any irritation. Hence it can be used as a bactericide from the very beginning of an attack of gonorrhœa.

It has the further advantage that it can safely be left in contact with the mucous membrane for a protracted period, even up to thirty minutes, by which time the sphincter has usually relaxed and allowed the fluid to flow into the posterior part of the urethra. The author lays down the following rules for treatment with protargol: The gonococcus must first be demonstrated, and it must be ascertained whether the posterior urethra is affected as well as the anterior. Next and at once systematic injection must be begun, the posterior urethra being treated as well, if necessary.

Injections should be given thrice daily, the first two remaining in five minutes apiece, the third, thirty minutes; if the secretion is considerable this should be changed five or six times. After a few days one injection per diem will often suffice, the protargol being replaced for the other two by astringent fluids. As the treatment is painless it can be conveniently continued for three or four weeks if necessary; even when the gonococci disappear within forty-eight hours the prolonged injections of protargol should be kept up once daily for a week. This is even more necessary when no bacteriological examination is made; if the treatment is too short by one day the good of weeks may be undone.

The strength of the protargol solution should be at first ¼ per cent., and then increased to ½ to 1 per cent. In chronic cases irritative measures, such as the injection of 1 in 2,000 argentamin may be resorted to; but here again the penetrative power of protargol renders it most valuable. Neisser concludes by expressing his belief that this substance is the best, safest, and most rapid remedy hitherto introduced in the treatment of gonorrhœa.

TREATMENT OF BURNS.

M. B. Werner (*Philadelphia Polyclinic*, October 30, 1897) claims excellent results from the use of a moist antiseptic dressing in burns. The procedure recommended is as follows:

1. Place the burned member or surface in a carbolized bath of from two per cent. to five per cent., depending on the age of the patient and the extent of the injured surface. A threefold effect is gained by this—*i. e.*, antisepsis, asepsis, anæsthesia.

2. Remove all the acid solution by a second bath in the physiologic saline solution.

3. Dust the entire surface with a powder containing acetanilid (one part) and compound zinc stearate (five parts).

4. Cover surface with narrow strips of Lister's green protective, or, if economy must be studied, thin gutta-percha tissue can be used instead.

5. Place wet sublimated gauze, ten to twenty thicknesses, over and around the surface, followed by ordinary bandaging.

The subsequent dressings differ only in one or two points from the first, as stated above. The carbolized bath is substituted by one of either the saline solution or a weak solution of mercury bichloride, followed by a spray of hydrogen dioxide, which will aid in removing all the pus and loose dead tissues; after this the surface is dusted with the powder, and protective strips, gauze and bandages are applied. These dressings are changed as often as needed, the extent and depth of the burn making its own rule, usually known by the amount of drainage and odor.

The advantages of this treatment over and above that of lotions, oils or salves, are: freedom from any accumulation of fats with dead epithelium, encouragement of a healthy epithelial granulation under a clean moist dressing, the Lister protective serving in the double capacity of preserving the new epithelial cells and as a temporary integument.

By this method cicatricial deformities are lessened and pain diminished.

THE LONGINGS OF PREGNANT WOMEN.

Dr. Galabin has noted that the well-known unnatural longings of pregnancy may be regarded as bearing some relation to insanity, for in some cases they proceed to such a length as to amount to moral perversion, as for instance when they take the form of dipsomania and kleptomania. In relation to the recent reinterment at Montbard of the remains of Marshal Junot, the *Chronique Médicale* has unearthed a passage from the valuable and very introspective memoirs of the hero's wife, the Duchesse d'Abrantès. Her evidence on "longings" deserve consideration for obvious reasons; she experienced the neurosis in question personally, and, what is more important, this celebrated lady clearly shows that in her case it was apparently a matter of pure suggestion. The Duchess declares that when she found herself pregnant for the first time she was very happy and exceedingly uncomfortable for several months, but had no longings, and had never heard of such things. Suddenly her mother one day exclaimed, "Mon Dieu! I have quite forgotten to ask what your 'longing' is!" The lady declared that she had no time to think of taking up an *envie* or *autojo*, as she spent most of her time in being sick. Her lady relatives grew sincerely alarmed; they said that she was in danger, and that if her longing was concealed her offspring would be marked with its symbol. Her sister had longed for cherries at Christmas, and the child she bore was marked with a cherry, which, judging from the Duchess's account would be called a nævus in our clinical columns. The Duchess racked her wits to find out what she longed for, and at last concluded that she wanted a pineapple. That fruit was out of season, but Marshal Junot found that Madame Bonaparte (afterwards the Empress Josephine) had some hot-house specimens, and that historic lady immediately supplied what was wanted. A remarkable incident followed. Junot hurried home with the pineapple, but Corvisart, who had heard of this interesting case, warned him not to let his wife eat any that evening. This advice was followed. Next morning, when the Duchess was frantic with joy at her longing being gratified, her Lord cut up the fruit with great courtesy in her presence, and sugared the slices. Whilst this was being done her frenzy for pineapple suddenly changed to an intense aversion, which never throughout her life underwent further change. The Duchess declares that the revulsion of feeling occurred instantaneously. What was especially remarkable was the fact that she could ever afterwards, as before, take sweets flavored with pineapple, though she could not tolerate the raw fruit. The child which she bore was not, it would appear, marked with anything like a pineapple. Thus a writer with personal experience of "longings" attests indisputably that they only developed after suggestion, and were actually reversed on gratification. On the other hand, it must not be forgotten that after living in reduced circumstances the Duchesse d'Abrantès died in a *maison de santé* in 1838. Hence the psychological doctrine that "longings" imply mental weakness previous to pregnancy may, after all, apply to her case.—*British Medical Journal.*

EXPLOSIVE HAIR COMBS.

A correspondent sends the London *Lancet* an account of a serious accident following the use of combs for the hair made of easily inflammable material. The accident in question was serious enough, but it is not unlikely to find conditions under which the same practice would be followed by results far more serious, if not fatal. A young girl was badly burned about the face, the eyes sharing in the injury. The story was that while the child was bending over a lighted candle, the comb retaining her hair, which was of the kind known as a "crop comb," fell forward, and, though it did not reach the candle flame, caught fire. A similar comb worn by the sister of the child in question was examined by our correspondent, and he sends us the following account of its properties: "It was made to imitate variegated brown and yellow horn, very flexible, but brittle. On exposure to heat it started to burn with explosive suddenness, and was quickly consumed." As is well known, there is a large trade done in this country in such articles. They are all made from substances which are practically identical in chemical composition. There is a large class of bodies known as nitro-cellulose compounds, all of which have gun cotton as their near neighbor. These bodies, when mixed with various ingredients, form a plastic mass which is capable of being worked into a variety of forms and of being made to assume a variety of coloring. On account of these properties they are largely used in the manufacture of imitation articles. All the bodies of this class are very inflammable, and many of them are explosive under certain conditions. Some of them ignite at a very low temperature, even as low as 200° C. Now an ordinary spark, to be visible, must have a temperature of about 600° C., consequently it is quite possible for an article made of these substances to ignite without any apparent contact with a flame or even a visible spark. When once alight they burn at a very high temperature, somewhere near 2,000° C. Very little is sufficient to cause them to burn with explosive violence; thus in the case of gun cotton, confinement within a canvas bag is sufficient for the purpose. It would therefore seem to be possible for a comb, closely confined as it is in the hair, to explode without any apparent cause. The greatest care is necessary in the manufacture of these combs in order to reduce as far as possible the inflammable and explosive nature of the materials of which they are made. The process requires constant watching and the most delicate manipulation, the slightest departure from the prescribed rules being likely to result in the production of a substance almost as explosive as the original gun cotton.

THE DETERMINATION OF SEX.

Prof. Schenk, of Vienna, Discovers the Secret.

Prof. Schenk, of the University of Vienna, has announced that he has been enabled to determine the sex of human offspring by giving suitable nourishment to the mother and by "influencing the metabolic process in the change of matter" of the embryo. His own statement of his theory as communicated by cable to the New York *World* is as follows:

"All former theories and hypotheses have been proved false. According to my discovery the man has no influence whatever on the sex of the child. It all depends upon the woman.

"The assertion that the ovum in the female ovary possesses the male or the female germ already developed before impregnation is false. On the contrary, the embryo is sexless during several stages of development. It is possible that my treatment can develop a male child even in this stage, but there is no certainty of it.

Blood Difference the Key to Sex.

"My discovery is based upon the scientific fact that the blood in a grown-up man contains five million blood corpuscles, the bearers of life-giving, nourishing oxygen, while the blood in a grown-up woman contains only four millions. This difference is the basis of differences in sex and of the different moral and physical working powers in man and woman. This proportion is observable in the slightest quantity of blood from a man or a woman.

"All my efforts are directed toward producing in the embryo the right number of blood corpuscles required by the male. I have succeeded in attaining this effect by suitable nourishment of the woman and by influencing the metabolic process in the change of matter.

"The proof of my discovery is that I can tell from the expectant mother's products whether she will have a son or a daughter. I have never made a mistake in many years in applying this test.

Treatment a Scientific Secret Yet.

"I gave the treatment under seal to the Vienna Imperial Academy of Science, where it will be tested and published. But I can tell you the results of my discovery and let you have the scientific facts upon which my discovery is based. What lies between is my secret. If I say I can determine the sex of a child to be born, you must understand that I can bring it about that the woman shall become the mother of a son and not of a daughter.

"My treatment has no other aim than causing boys to be born. I made my discovery many years ago and subjected it to proofs. It is by my own choice that I am the father of six sons, four of whom are alive and strong. I have achieved similar results in the families of relatives, friends and some persons in whose ability to keep a secret I had full confidence—fourteen cases in all.

"But I cannot treat every stranger who may appeal to me. I must be able to watch the patient, must be certain that my directions are scrupulously obeyed. I consider every new case an experiment, a test of my discovery. I must have certainty.

"I can bring it about with human beings or with animals having one young at a time that this offspring shall be male, and with animals bearing many together that the majority shall be male.

"When I observed hens I numbered the eggs, determining beforehand whether a male or a female bird would come out. I scarcely ever was mistaken."

The *World's* correspondent remarked that no doubt he would be appealed to by many families, especially where large fortunes are at stake. The Professor replied:

"I am no man of business, but exclusively a scientist. I am not anxious to gain a fortune, but desire above everything that my discovery shall be scientifically confirmed and recognized. The Academy of Sciences alone can do this.

"I have accepted no reward in the successful cases I have treated. They are precious to me beyond gold as proofs of the reality of my discovery.

"I have achieved success in a family in which the desires for the birth of a son were intense. If I told you the name of the head of the family you would know that for him to pay me $10,000 for my services would be no more than for you to pay a doctor $1 for examining your throat. But I did not accept any reward."

There is only one public personage in Austria to whom all the Professor's indications point. He is a member of the imperial house—Archduke Frederick, a nephew of the old Archduke Albrecht, at whose death three years ago he inherited a colossal property, entailed because Archduke Albrecht left only one daughter and no son. The property consists of extensive lands, forests, mines and iron works, known to be worth more than $50,000,000. Frederick's wife, the Princess, gave birth to eight daughters in succession. Finally, however, she placed herself under the care of Prof. Schenk and then gave birth to a son in her forty-first year, nineteen years after her marriage.

Prof. Schenk occupies a high position as an authority, but his claims are accepted with reserve by the medical profession until more complete data and statistics are forthcoming.

Many authorities agree with Virchow and Ohlsausen in holding that the germ cell is originally either male or female and not bisexual as held by Schenk.

BOOK REVIEWS

A Text-Book of Practical Therapeutics, with especial reference to the application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia, etc. With special chapters by Drs. George E. de Schweinitz, Edward Martin and Barton C. Hirst. Sixth edition, thoroughly revised and largely rewritten. In one octavo volume of 756 pages. Cloth, $3.75; leather, $4.75. Lea Brothers & Co., publishers, Philadelphia and New York, 1897.

A sixth edition of a book within seven years leaves us in no doubt as to its acceptability. The arrangement was novel and its practical value cannot have received a better endorsement than the early exhaustion of each edition as it appears. The divisions—drugs and diseases—separatively and collectively furnish in an interesting and practical way the subject of therapeutics. This treatment by serum preparations is included in the present work; and it otherwise worthy of a continuance of the support which it has already received.

Text Book on Nervous Diseases, being a Compendium for the Use of Students and Practitioners of Medicine. By Charles L. Dana, A.M., M.D., Professor of Nervous and Mental Diseases in Bellevue Hospital Medical College, Visiting Physician to Bellevue Hospital, Neurologist to the Montefiore Home, ex-President to the American Neurological Association, etc. Fourth edition, revised and enlarged. With 246 illustrations. New York: William Wood & Co. 1897. Pp. 623.

The rapid exhaustion of three editions of this work testifies to its appreciation of the medical profession.

The author has subjected the book to a most thorough revision, in order to meet the demands arising from the advance in Neurology during the past five years.

A comparison of the first and fourth edition shows that the latter book has been almost re-written.

The author has finished a book which will prove an enduring ornament to his industry and learning, and which will bring American Neurology into the front rank. The writer was informed by a prominent German teacher of Neurology that he regarded Dr. Dana's work as the best text book on nervous diseases.

The chief value of the work lies in its practical character, and yet there is no neglect of scientific elements; anatomy and physiology and pathology are held up as important branches of study. The student is clearly taught how to master the main facts. Herein the author has excelled all other treatises. His large experience as a teacher has enabled him to present each subject in a systematic manner and to facilitate its mastery by certain details which must prove invaluable.

It is evident that the author is not a mushroom specialist who has suddenly budded forth without previous observations and clinical experience as a general practitioner. He is still visiting physician to the general wards of Bellevue Hospital, a fact which places him, in the estimation of the general practitioner, far above those whose daily routine lies entirely in the domain of their specialty—as a guide to the anxious seeker after information.

Space forbids our entering into a detailed review of the several chapters of this book. As a guide to our readers, we may say conscientiously that they will discover in this stately volume a perfect storehouse of all the facts in Neurology, and that, as a book of reference, the busy practitioner will treasure it for its thoroughness, conciseness and adaptations to his wants.

The typography of the edition is far superior to that of previous editions; it is highly creditable to the publishers.

Simon's Clinical Diagnosis—New (Second) Edition, Revised and Enlarged. A Manual of Clinical Diagnosis by Microscopical and Chemical Methods. For Students, Hospital Physicians and Practitioners. By Charles E. Simon, M.D., late Assistant Resident Physician Johns Hopkins Hospital, Baltimore. In one very handsome octavo volume of 530 pages, with 135 engravings and 14 full-page colored plates. Cloth, $3.50.

This work was noticed in detail in the columns of this JOURNAL when it appeared in its first edition. The appearance of a second edition so soon (within a year) must be a source of gratification to both author and publisher. It is also an index of the trend of medical work and medical men to more careful and thorough methods in the accurate differentiation of diseases. If we were to endeavor to point out in what particulars the book was especially satisfactory we would have to begin with the first chapter and finish with the last; indeed, it will be difficult to find any method for the improvement of practical diagnosis, which is not clearly and satisfactorily set forth in the present volume. The illustrations, especially the colored plates, are in every way most acceptable.

For thirty-two acres in New York City there are 986.4 people to the acre. The nearest approach to this congested condition is a little spot in Bombay, where there are 759.66 to the acre. The densest London district has only 365.3 people to the acre.

FAVORITE PRESCRIPTIONS.

THE TREATMENT OF WHOOPING-COUGH.

Naegeli-Akerblom calls attention to an old remedy for whooping-cough, namely, coccionella, which in 1853 was designated by Oesterlein as a harmless resurrected remedy. He treated about eighty cases with this drug with excellent results; the disease disappeared totally within six to eight days.

The following was the formula:

℞	Coccionellæ subt. pulv	1 to 3 grs.
	Ammonii carbonici	1½ to 3 grs.
	Syrup aurant	6 drms.
	Aq. destillatæ, q. s. ad	3 ozs.

Shake.—A teaspoonful every two hours.

The mixture is undoubtedly more agreeable to children than quinine or antipyrine. Ammonium carbonate alone exerted no remedial influence on whooping-cough; coccionella on the other hand was exhibited successfully. In cases of bronchial asthma of adults, where all other remedies failed, it was found useful.

SCHLEICH'S INFILTRATION ANESTHESIA.

Weak solution for use in children.

℞	Cocain hydrochlor	⅛ gr.
	Morph. hydrochlor	1/12 gr.
	Aquæ destill	3 ozs.
	Sodii chlor	1/3 gr.

FOR DIFFICULT DENTITION.

℞	Sodii brom	gr. vij
	Ag. flor. aurant	
	Syr. æth	℥ j
	Aq. destill	℥ iv

Sig.—For external application. To be lightly rubbed on the gums of the infant, after nursing, several times daily.—*Sem. Med.*

FOR WHOOPING-COUGH.

℞	Bromoformii	ʒ ss
	Tinct. aconiti	min. xvi
	Tinct. strychni	
	Tinct. grindel. rob	āā min. xij
	Tinct. bryoniæ	min. vij
	Syr. opiati	℥ iss
	Syr. cort aurant	℥ iij
	Alcohol (90 %)	℥ j

M. Sig.—A teaspoon to a tablespoonful, according to age, to be taken daily (may be diluted with water).—*La Med. Moderne.*

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Scientia et Veritas Sine Timore.

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PURE WATER SUPPLY FOR THE RURAL POPULATION.

WHILE urban populations are surrounded with dangers not shared by residents of rural districts, they are also surrounded by safeguards which the dweller in the country knows nothing of. The sanitary inspector and the analytical chemist do work in the city which is left undone in the country, or if done is a labor of love on the part of the country physician. Every city has a corps of experts busy with the problem of furnishing a pure water supply, while a large proportion of the rural population go on drinking diluted sewage from seep-wells, and raising the death rate from typhoid fever without even being aware of the fact that they are doing anything unsanitary.

Statistics show that in the State of Michigan there were twenty-six times as many cases of typhoid fever in an area where well water was used as in one where water from Lake Michigan was used as a source of supply. In Pennsylvania, Dr. Bashore stated before the recent meeting of the American Public Health Association, there are fifteen times more typhoid cases in the country than in the cities in proportion to the population.

The remedy is an improvement in the water supply, and this can easily be had by resort to properly constructed cisterns of ample capacity and provided with a well constructed filter.

Given the average rainfall, the area of collecting surface, and the number of persons to be supplied, it is easy to calculate the capacity of a cistern to supply the needs of a family. In Pennsylvania, for instance, where the rainfall is pretty evenly divided throughout the year, it was calculated by Dr. Bashore, in the paper above referred to, that with a roof surface of one thousand feet and a rainfall of thirty-seven inches, about twenty thousand gallons will be collectable annually, which at ten gallons per capita per day is enough for a family of six persons.

In Pennsylvania a cistern five feet deep and ten feet in diameter would hold enough to last a little more than a month, by which time it would, no doubt, be again replenished by rain. In the South, however, a somewhat larger cistern would be advisable, as it would not always be safe to count on having the supply renewed within that time, and as the amount of water used per capita would be largest in the hot season, just when the supply is most limited.

Here is a field in which it behooves the country practitioner to take the initiative. He must perform the duties of the sanitary inspector and the water analyst, and must see that patients have a pure water supply, or at least urge them to provide themselves with one.

THE PROGRESS OF MEDICINE—BY CABLE.

THE secrecy surrounding the details of the methods and the startling publicity given to the alleged result of the wonderful discovery of Dr. Schenk, of Vienna, which, as we learn by cable reports to the daily papers, is to revolutionize the proportionate relation of the male to female infants, smacks too much of charlatanism to be wholly palatable to the medical profession at large. It is possible that Dr. Schenk may have made some important discovery relating to the determination of sex, but if he has, he has been most unfortunate in his methods of announcing that discovery. He is quoted as stating that his observations have been deposited under seal with a medical society in Vienna. If this be true, it is then unfortunate that he has been less chary of announcing his results than his methods. To the Western mind this savors somewhat of advertising.

Not that in the mad race for the bubble reputation we Westerns are behind our Eastern confreres. We have been treated of late to news reports in the daily papers of a case of excision of the stomach by a German surgeon with more or less meager clinical details. The patient is reported by cable as doing very well. Within a week or so of the receipt of this meager news we have two cases of extirpation of the stomach, one in St. Louis and one in Minneapolis. In the first of these the patient lived one hour; in the second he survived for four hours. Is not this almost an indiscreet haste to follow the advance of science? Would it not be as well to await the full clinical details of so important an operation before essaying it?

A somewhat similar case, though we believe with rather more happy results, occurred in connection with the excision of a portion of the intestine. A German surgeon removed five feet of the intestine of a patient. The case was duly reported and a St. Louis surgeon "went him one better," excising six feet. Kansas City would not be outdone and "raised the limit" to eight feet.

It is of course possible that these occurrences are merely coincidences, but their recurrence leads one almost to deplore the telegraphic celerity of the modern advance in the science of medicine.

ABORTIVE TREATMENT OF SMALLPOX.

THE rapid spread of smallpox in Georgia and the large number of cases reported in Atlanta—numbering over two hundred during the month of December—serves to make an address by Dr. Harris to the Birmingham Medical Society on the abortive treatment of smallpox specially interesting. The theory underlying this method of treatment seems to be a sound and reasonable one, and quite in keeping with such positive knowledge of the disease as we are possessed of. Briefly stated this theory is that but for the occurrence of septic infection smallpox would end with the vesicular stage; that the pus forming germs, which are always present in the superficial layers of the epidermis, give rise to a secondary infection of the vesicles, which then become malignant pustules, while to this secondary infection is due the secondary rise of fever, which has correctly been looked upon as being of septic origin. This theory of the etiology of the disease being accepted, a resort to antiseptic methods of treatment becomes a forgone conclusion. The excellent results following a resort to this method, as reported by Dr. Harris, not only confirms the correctness of the theory enunciated as to the character of the disease, but proves the accuracy of the deductions based upon this hypothesis.

Sir William MacCormac is said to be the most highly decorated member of his profession in Great Britain. He has the Order of Medjidie, the Crown of Prussia, the Ritter Kreuz of Bavaria, Dannebrog, Crown of Italy, Cross of the Takovo of Servia, Order of Merit of Spain and Portugal, and the Star of Sweden. He is also Knight of Grace of the Order of St. John of Jerusalem.

WHILE Representative McClellan, of New York, is engaged in criticizing the staff organization of the army he might with advantage pay some attention to staff organization in the navy. The reorganization of the line and staff as outlined by the committee appointed for the reorganization of the personnel of the navy has apparently provided a means for doing away with much of the friction between the engineers and the line officers, but no step has been proposed to give adequate recognition to the medical officers of the navy. So long as the medical officers are relegated to the "steerage" and ranked with junior officers there will be difficulty in securing an adequate number of surgeons of satisfactory attainments.

A formaldehyde disinfecting apparatus will form a part of the outfit of the great library of the city of New York, which is to be formed by the consolidation of the Lenox, Tilden and Astor foundations. In this apparatus all books, when returned to the library, will be disinfected with fomaldehyde gas before being returned to the library shelves. This step is a very important one from a hygienic point of view, for there is no doubt that in the crowded sections of the city books from circulating libraries have acted as carriers of infection. While it is illegal in New York for a person to borrow a book from a circulating library and take it into a house where there are patients suffering from infectious diseases, this is often done unwittingly or at least without the knowledge of the librarians. The disinfection which Dr. Billings, the head of the new library, proposes to subject all books to will be a much needed safeguard.

The physician generally has trouble with both the family and the patient when he wishes to perform any kind of an operation, even if it be so insignificant a one as the hypodermic injection of antitoxin. It will be welcome news then to learn that one practitioner reports as good results from the administration of antitoxin by the mouth as by hypodermic injection. This statement is made by Dr. Porteous, of Yonkers, who gives a history of several cases in the *Medical Record*, in which satisfactory results followed the administration of antitoxin by the mouth. While this is contrary to all accepted theory, *experientia docet*, and we may after all be able to dispense with the hypodermic syringe in the use of antitoxin.

It is to be noted with regret that in Bombay the Plague Committee appointed by the Indian Government has almost entirely given up the use of Dr. Yersin's antitoxin serum treatment of the bubonic plague, as it was found not to fulfil in any way the primary object of its application. Dr. Haffkine's inoculations of cultures of plague bacilli which have been sterilized and the bacilli thus killed, are, however, still being tried.

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THE PROGRESS OF SERUMTHERAPY.

Experience in Virginia with the Antitoxin Treatment.

A REPORT BY ARTHUR JORDAN, M. D., LANDON, B. EDWARDS, M.D., AND E. C. LEVY, M.D.

Presented to the Richmond Academy of Medicine and Surgery.

FOLLOWING is the report submitted by the above named committee at the last meeting of the Richmond Academy, and communicated by the academy to this journal.

To the Fellows of the Richmond Academy of Medicine and Surgery:

Your committee, appointed April 13, 1897, begs leave to submit the following report upon "The Progress of.Serumtherapy."

The first mention of the employment of the idea of serumtherapy is that in the recorded practice of inoculating patients as a prophylactic measure against smallpox, employed at the beginning of the eighteenth century in Turkey. Inoculation gave way before the more desirable method of vaccination. The number of lives which Jenner's discovery has saved is well nigh incalculable. The first mention of the use of serum is to be found among the Germans, who employed the treatment under the name of isopathy, about the middle of the century. To what extent it was used, and with what success it was credited by them, is not definitely stated, but it must have impressed them favorably, for a variety of isopathic preparations made their appearance under such names as "phthisia, hydrophobia, scarlatinia," etc.*

Diphtheria.

The history of the development of the antitoxin treatment of diphtheria is so well known, and its acceptance now so universal, that it would be useless, even if the limits of this report rendered it possible to go fully into details on these points. Even at the time that your committee was appointed it could be said that a sufficiently extensive trial of the antitoxin treatment of diphtheria had been made to remove the fears which many had entertained as to its action, and to place the remedy in an assured position as one of inestimable worth.

During the past year statistics from many and varied sources have appeared, all tending still further to increase the confidence of the profession in the remedy, and to demonstrate the saving of life which it has accomplished. Many who were skeptical have been convinced by the unanswerable argument of statistics whose authenticity could not be questioned, until to-day it may be said that but few physicians, indeed, who have given the subject careful consideration do not accord to the remedy even more value than was at first claimed for it by its stanchest advocates.

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* New York *Medical Times*, Vol. 24, p. 67.

Only two sets of these statistics will be referred to, not because they are more favorable than others, but on account of the large number of cases recorded in them, and because they represent such diversity in the class of cases treated.

The report of the committee of the American Pædiatric Society, presented at its last meeting, includes 1,704 cases of laryngeal diphtheria which occurred in the practice of 422 physicians in the United States and Canada. In this report the following points are among the most prominent: Before the use of antitoxin it was estimated that 90 per cent. of laryngeal diphtheria cases required operation, whereas now, with the use of antitoxin, only 39.21 per cent. require it. The mortality in the wholes series of 1,704 cases was 21.12 per cent. (360 deaths). In the non-operated cases the mortality was 17.18 per cent. (178 deaths). The mortality in the operated cases (27.24 per cent.—182 deaths) shows even more remarkable results. Before the use of antitoxin only 27 per cent. recovered; now only 27.24 per cent. die.

The other report to which reference will be made is the "Second Report of Medical Superintendents upon the Use of Antitoxic Serum in the Treatment of Diphtheria in the Hospitals of the Metropolitan Asylum's Board during the year 1896." (London.) In these hospitals during 1896 antitoxin was used in 71.3 per cent. of all cases of diphtheria, the remedy not being employed in moribund, mild, or doubtful cases. The total death rate during 1896 (under antitoxin) was 20.8 per cent.; that of 1894 (without antitoxin), although then considered remarkably low, was 29.6 per cent. This represented a saving of 365 lives. It is well known, however, that only during the early days of the disease does antitoxin exert its full beneficial effect; and hence, while the above figures show a difference in the total death rate of only 8.8 per cent., the difference in cases treated on the first day was 17.8 per cent.; on the second day, 14.2 per cent.; on the third day, 11.7 per cent.; on the fourth day, 9.1 per cent., and on the fifth day or later, 6.2 per cent. Laryngeal cases were attended with a mortality of 62 per cent. in 1894; 29.6 per cent. in 1896. Operated laryngeal cases had a death rate of 70.4 per cent. in 1894; 41 per cent. in 1896. It is the opinion of the superintendents that there has been no reduction in the frequency of complications of the disease as a result of antitoxin treatment, except in the case of nephritis, which occurs less often. In fact, it would seem as if the other complications occur even more frequently than formerly. This, however, is only apparent, and is due to the closer observations which are now made, and, even more, to the fact that many severe cases, which would have died under other treatment, now recover, and these are naturally more prone to develop complications.

In this report the general results of antitoxin treatment are summed up as follows: 1. Diminution of faucial swelling; 2. Lessening of irritating and offensive discharge from the nose; 3. Limitation of extension of membrane; 4. Earlier separation of exudate; 5. Limitation and earlier separation of membrane in laryngeal cases; 6. Improvement in general condition and aspect of patients; 7. Prolongation of life, in fatal cases, to an extent not obtained with former methods of treatment.

It has been claimed by those who refuse to recognize the value of diphtheria antitoxin, that the favorable results shown in the statistics of the past few years are due to other factors than the employment of antitoxin. By some it is held that the type of the disease has become milder; others that since the widespread application of bacteriologic diagnosis, cases are now called diphtheria which were formerly not so classified; or, again, that moribund cases and cases treated after the fifth day of the disease are excluded in many of the statistics. The first report to which reference has been made above, answers fully the first objection, since it deals with only laryngeal cases, and laryngeal diphtheria can never be considered mild. In the report of the Metropolitan Asylum's Board Hospitals mild as well as moribund cases were not injected. As regards the influence of bacteriologic diagnosis, it is a fact which no one acquainted with the subject will dispute that the number of cases which would formerly have been considered diphtheria, but which are now excluded from the statistics by bacteriologic investigation, far exceed those in which the reverse is true.

While the above are strong replies to the criticisms of the opponents of antitoxin, we are indebted to Park* for a table of statistics against which none of the usual objections can be urged. This table, compiled from the official records of Berlin, Paris and New York, shows the abolute death rate per 100,000 inhabitants in these cities from diphtheria and croup from 1886 to 1897 inclusive. There is here no room for asserting that the statistics have been twisted to favor any plan of treatment, that any special class of cases has been excluded or included, and yet the reduction in mortality in all three of these cities since the introduction of antitoxin is remarkable and too uniform to be the result of mere coincidence. This table is of such interest that it is here appended:

As regards actual advances in the antitoxin treatment of diphtheria, the chief of these seems to be the production of more potent and trustworthy serums and the attention to details in its manufacture, whereby its efficacy has been increased and many of its objectionable features diminished. Rashes and joint symptoms following its use are now somewhat less frequent than formerly.

The preparation of dried serum has not yet been brought to a sufficient degree of perfection to supplant the ordinary product, while "we have no more hope than we had five years ago of separating antitoxin completely from the horse serum."†

During the past few months the Health Department of New York city has been testing the comparative frequency of rashes after the use of filtered and unfiltered serums. Your committee is indebted to Dr. William L. Somerset, resident physician Willard Parker Hospital, for the following statement, which is an approximate one, of the results obtained: Previous to the employment of filtered serum, rashes occurred at the

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* Park, Wm. H.: Contributions of Bacteriology to Therapeutics. Wesley M. Carpenter Lecture for 1897.

† Park, loc. cit.

Wilard Parker Hospital in from 25 to 30 per cent. of all cases; since the use of filtered and unfiltered serum in parallel cases, the percentage of rashes where filtered serum was injected has been reduced to about 15 per cent., while it has risen to about 40 per cent. where the unfiltered product was employed. The higher percentage of rashes in the latter class of cases than formerly, is due to the fact that the unfiltered serum used in these cases contained the residue from the filtered portion. It would thus appear that the production of rashes is caused largely by some constituent of the serum which is incapable of passing, or passes only in small amounts, through unglazed porcelain.

The use of antitoxin as a prophylactic measure has been steadily gaining ground, and with the production of a serum from which all objectionable features have been eliminated, its use in this direction will doubtless become even more popular; though, from the temporary nature of the immunity affected, it must remain a measure to be adopted only in the presence of epidemics or in cases where exposure has undoubtedly occurred.

Yellow Fever.

In 1854 and 1855, inoculation, as a preventive measure, was made use of in Havana during an epidemic of yellow fever. In 1887, this idea was again introduced and followed up very thoroughly in Brazil. But in neither instance were the results satisfactory. In 1892, Domingo Freire introduced a diluted virus derived from the micrococcus xanthogenicus, which he held to be the etiological factor in the development of yellow fever. This diluted virus was advocated as a preventive inoculation by Dr. Belinger, of San Francisco; Dr. J. McFadden Gaston, of Atlanta, ond others during 1893 and 1894; but the results have been disappointing. About the same time, in 1893, Dr. A. S. Ashmead recommended "Murray's immunizing method" as follows: "Inoculate with the blood serum of a partially immune subject (negro), and inoculate a second time with perfectly immune blood serum of a white subject who has had yellow fever. Before inoculation, however, as frost always modifies the virus, let the infected serum be first exposed to frost. Follow at once with a second inoculation of immune blood serum." Disappointments likewise followed the use of this method.

In July, 1897, Professor G. Sanarelli, of the University of Montevideo, isolated and cultivated a bacillus which he considers to be the specific organism of yellow fever. Probably it is in the same bacillus as that formerly described by Surgeon-General Sternberg. Possibly both may ultimately be proven to be secondary invaders. However, Sanarelli has been occupying himself since last summer in the securing of a protective or curative serum, about which most encouraging reports have been already made. And yet scarcely is the hope born that at length we have a protective or curative agent with which to meet yellow fever before adverse reports are coming in to indicate that we must wait and see.

Tuberculosis.

The medical world was startled in 1890 by the announcement that Koch had discovered a remedial agent for phthisis. This announcement was hailed with joy, and it was immediately put to the clinical test, but its virtues, so ably set forth by its discoverer, soon began to minimize, and finally it fell into disrepute as a curative remedy. Since the introduction of tuberculin, several serums have been brought forward, and have been tried with varying success by many physicians.

Among the most popular of these preparations are the serum of Professor E. Maragliano, of Genoa, obtained from the dog, the ass, and the serum. When treatment was begun as late as the formation of cavities in the lungs, he claims a cure of 7.76 per cent. In non-febrile tuberculosis, his successes have amounted to nearly 100 per cent. of recoveries. He recommends that 1 c. m. of the serum should be the dose injected subcutaneously every second day. In febrile forms, the dose may be increased for several days—5 to 8 days—to 5 and even 10 c.m. Such are the contradictory reports as regards successful use of Maragliano's serum by different doctors that it is difficult to come to a fixed opinion on the subject.

What has been said in general of Maragliano serum applies in the main to the published results of the use of the antitubercle serum introduced in 1895 by Dr. Paul Paquin, of St. Louis. That it is useful when administered with other remedies is more than probable.

Early in 1896 Koch introduced what he called T. R. tuberculin, and this was followed by encouraging reports of its use. But it was not long before the process of its manufacture was found to be faulty, in that, notwithstanding the centrifugation, it was discovered that in a large number of the preparations on the market tubercle bacilli remained in the fluid. This being recognized as an error of manufacture, it has been withdrawn from market—certainly until the fault of its manufacture can be remedied.

Antiphthisin is a sozalbumin introduced some years ago by Klebs, which he regards as the germicidal part of tuberculin. Von Ruck "attests its absolute safety, and considers that it has curative properties."

But the early disappointments in practice of the serum treatment of tuberculosis have made the profession skeptical as to the remunerative value of any and all such methods of treatment; and yet it is evident to the non-skeptical who reviews the experience of unbiased practitioners that it is probable that whatever may be found curative of tuberculosis, one of the measures to be used will be perfection of some of the antitoxins so called. It is the opinion of many that the scientific worker is getting in the neighborhood of the real remedy, and is probably knocking at a door of the house in which the truth is to be found.

Typhoid Fever.

Chautemesse and Widal found, in 1888, that susceptible animals could be rendered immune by inoculating them with a culture of the typhoid organisms which had been rendered sterile by heat.

Following this line of investigation, serumtherapy has been employed in typhoid fever. However, with the most persistent use of this substance, the results in this disease have been unsatisfactory.

Scarlet Fever.

An antistreptococcic serum has been employed in this affection, and while it does not seem to have any efficacy in the scarlet fever itself, yet, from a certain number of observations made by Roux, it appears to have a favorable influence on the complications due to the streptococcus, and which are so common in this malady.

Typhus Fever.

In a prison at Bougie, from November 25 to December 12, 40 cases occurred, with two deaths. Serumtherapy was commenced December 12, the serum being obtained from patients who had recovered. From to 2 to 6 c.c. were injected into each of 39 c., and only one died. Legrain noted fall of temperature, improvement in pulse, disappearance of fever, and that severe cases soon became mild in type.

Although this disease is rare, owing to improved hygienic measures, yet, from the favorable report of serum in its treatment, it is to be hoped that the rate of mortality will be kept lowered in those instances where disease gains a fotthold.

Rabies.

Tizzoni and Cattani reported that serum of animals, rendered immune to hydrophobia, has the power of conferring immunity and arresting the disease when already developed. So far no trial has been made in man. If successful here, its value will surpass the treatment of Pasteur, in that the latter may produce immunity, but cannot cure the disease if once developed.

Leprosy.

Carrasquilla treated a number of cases of leprosy with serum, and in fifteen cases of the anæsthetic type secured a remarkable degree of success. Medina, commenting on this treatment, sums up as follows:*

"The sensation is restored more or less rapidly according to the extent and gravity of the lesions of the peripheral nervous system. Distinct patches lose their abdominal color without disappearing entirely. Œdema subsided rapidly in some cases, slowly in others. The skin shrinks and resumes its physiological condition after the absorption of the œdema. The tubercular variety shrinks, breaks down, and disappears by absorption, desquamation, or suppuration, leaving traces of their existence at the affected spots. Ulcers, after having presented copious purulent secretions, rapidly clear off and are covered with healthy skin; scars from former suppurative lepromata fade and tend to assume the same level as the surrounding skin. Ulcerated mucous membranes fade like the skin and recover sensibility, while the tubercles break down. The face loses its leonine appearance. Lastly, the patient recovers his appetite, the ability to sleep, and the mental state improves."

Sarcoma and Carcinoma.

Varying success has attended the use of bacterial products in inoperable malignant disease. Coley, who has done a great deal of work in this class of cases, secured greater success with the treatment in sarcoma than in carcinoma. The conclusions of the New York Surgical

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* Report to the National Academy of Medicine of Columbia, at Bogota, 1895.

Society, which may be considered as a conservative survey of the efficacy of this treatment in malignant diseases, are as follows:*

"(1). The danger to the patient from the treatment is great.

(2). The alleged successes are so few and doubtful, the most that can be said for the treatment is that it may offer a slight chance of improvement.

(3). Valuable time has been lost in operable cases by giving the treatment a trial before operating.

(4). The method should be absolutely confined to inoperable cases."

Syphilis.

Richet and Haricourt were the first to try injections of serum in the treatment of syphilis. They report two cases, one resulting in a cure, the other showed marked signs of improvement—the ulcerated surface decreasing four-fifths in size. Pellizzari and Neuman have employed blood in its treatment, but no satisfactory results were obtained.

Streptococcic Infections.

In erysipelas, Marmoreck used the antistreptococcic serum in 413 cases in which the mortality was 3.87 per cent., against 5 per cent. prior to the use of serum. In 165 cases of erysipelas alone, the mortality was 1.2 per cent. As a result of the use of the serum, he noticed an improvement in the general condition, fall of temperature, and local improvement.

Puerperal fever has been treated by this plan with a certain degree of success. It has not proven as useful in this disease as there was reason to expect at the first mentioning of the subject.

The serum has also been used with success in acute hæmorrhagic septicæmia, erysipelas monatorium, acute genital septic peritonitis, purulent cellulitis of the face, cerebro-spinal meningitis.

Pneumonia.

Klempeur, in 1892 and 1893, published his researches as to the treatment of serumtherapy in six cases with good results. Mosny, Bonone, Emmerich, and Pansini following up this idea, obtained practically the same results as Klempeur. On the other hand, Hughes and Carter, in 1894, reported the injection of the serum of patients just recovered from pneumonia in ten cases of this disease, and they had no reason to consider the treatment efficacious.

Cholera.

Many experiments have been made in cholera, chiefly as inoculations, and these mostly in animals until recently. During an epidemic of this dread malady in Spain, 50 per cent. of those attacked died. After inoculation was used, the rate of mortality was reduced to 25 per cent.

Influenza.

The bacteria of influenza was discovered in 1892. Rabbits were inoculated with cultures, and after they had been proven immune, the blood serum was used on men suffering for influenza with varying success.

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* Annals of Surgery, 1896.

The serum treatment has been extended considerably in its scope, so that at the present time few of the more infectious diseases, to which mankind is liable, have not been considered by the experimental bacteriologist. In addition to the diseases above referred to, may be mentioned the bubonic plague, anthrax, alcoholism, acute delirious mania, glanders, pleuro-pneumonia, foot and mouth disease, chicken cholera, hog cholera, and bites of reptiles, as other diseases in which serumtherapy has been employed.

Tetanus.

Behring and Kitasato were the first to produce in the blood of animals a distinctly potent and valuable antitoxic substance. In 1892, Dr. Rudolph Schwarz reported the first success with tetanus antitoxin in man. Cases of cure have been reported from time to time which gradually increase the per cent. of recoveries. It may be very properly asked why the success with serum in this disease is not so favorable as that in diphtheria—the two antitoxins being "so nearly identical in their efficacy as agents for immunization?" The answer may be found "in the manner" in which "the two infections begin and progress."* The tentanus affection advances for from five to ten days undetected in the wound, the toxins develop unnoticed, cause their deleterious effect, and only after general poisoning has occurred is the disease detected.

The diphtheria infection starts on the surface, and before its toxins are fully developed and absorbed, it is diagnosticated by the appearance of its exudate, the husky voice, or the nasal obstruction. At this time we could also arrest the tetanus infection. If we allow this time to pass by, then, as in tetanus, after the constitutional poisoning has taken place, the antitoxin is usually of no avail.

An improvement in the form of tetanus antitoxin is the solid variety. It is claimed that this preparation can be kept indefinitely, and is ready for use at any time by simply dissolving it in water.

Experience with Serumtherapy in Virginia.

Having briefly reviewed the progress of serumtherapy from its incipiency up to the present time, the committee thought it advisable to ascertain the extent to which this class of remedies had been employed in our own state. With this object in view, circular letters were sent to the members of the Medical Society of Virginia, and to such other physicians in the state as the committee had reason to believe had employed serum treatment. In this communication information was requested under four headings—diphtheria, tuberculosis, tetanus, and the diseases for which antistreptococcic serum is employed. Under the respective headings replies were sought upon the leading points of interest likely to arise in the course of the disease under consideration.

In response to about one thousand of the above letters of inquiry, the committee received reports from 79 physicians. Thirty-five of these state that they have not employed serum in their practice, giving as their reason, in all but four instances, lack of opportunity to test the same. The reason of non-employment of the remedy by these four is stated to be disbelief either in the efficacy of the treatment or in the theory upon which its application is founded.

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* The Wesley M. Carpenter Lecture for 1887. By Wm. H. Park, M.D.

Of the forty-four who have employed serum, thirty-one used it in diphtheria alone; six in tuberculosis; one in tetanus; four in diphtheria and tuberculosis; one in diphtheria and tetanus, and one in diphtheria and puerperal sepsis. The total number of cases reported was 151, there being 100 cases of diphtheria, 48 of tuberculosis, two of tetanus and one of puerperal sepsis.

The committee feels confident that these figures do not represent the entire number of cases in which antitoxin treatment has been employed in Virginia. Although every effort was made to secure reports from all physicians in the state who had employed serum treatment, many who have used the remedy failed to respond to the letters of inquiry, and in other instances the reports were received too late for tabulation.

The reports received on diphtheria embrace one hundred cases occurring in the practice of thirty-seven physicians. The following tables, compiled from these reports, show the results obtained:

[Table No. 1 is omitted as the important features in it are recapitulated in the remaining tables.—Ed. Gaillard's.]

TABLE II.—*Classification of Cases.*

Laryngeal	14
Laryngeal and tonsillar	4
Laryngeal and pharyngeal	2
Laryngeal, tonsillar and pharyngeal	3
Laryngeal and nasal	1
Tonsillar	12
Pharyngeal	7
Nasal	1
Tonsillar and pharyngeal	14
Tonsillar and nasal	1
Tonsillar, pharyngeal and nasal	3
Pharyngeal and nasal	1
Tonsillar, pharyngeal, nasal, buccal and vaginal	1
General	3
Not stated	33
Total	100

Average time of improvement after injection of antitoxin, in forty-seven cases stated, 12.1 hours.

Average time of disappearance of membrane, in fifty cases stated, 7.1 days.

Rashes occurred as a result of the antitoxin in eight cases—seven urticarial and one macular. Joint affections occurred in two cases. The less frequent occurrence of these symptoms after the administration of antitoxin shows an improvement which may fairly be attributed to the smaller amount of serum which it is necessary to inject since higher potencies have come into general use; although the possibility of the occurrence of rashes being overlooked in private practice should not be forgotten.

TABLE III.—*Type of Disease.*

Type.	Cases.	Cured.	Died.	Per Cent. of Deaths.
Laryngeal	24	21	*3	12.50
Non-laryngeal	43	40	**3	6.97
Not stated	33	31	2	6.06
Total	100	92	8	8.00

* One death from broncho-pneumonia 21 days after disappearance of membrane.
** One case moribund when first injected.

Of the twenty-four laryngeal cases reported, three were operated (tracheotomy) with two recoveries and one death. Unfortunately, dosage was not stated in any of the operated cases.

Complications. Albuminuria occurred in seven cases, one of which seemed to be favorably influenced by the antitoxin. In one case with complications of broncho-pneumonia, acute nephritis and paralysis, these complications improved after second injection.

TABLE IV.—*Severity of Disease.*

Type.	Cases.	Cured.	Died.	Per Cent. of Deaths.
Mild	14	13	*1	7.14
Severe	39	37	2	5.13
Malignant	20	17	3	15.00
Not stated	27	25	2	7.41
Total	100	92	8	8.00

* A case of tonsillar and pharyngeal diphtheria in a child of five years; 1,500 units injected on second day of illness; 1,500 units eight hours later. Died suddenly four hours after second injection.

Of the hundred cases reported, all except one were in white subjects.

The total number of cases reported is rather small to permit of deductions in certain directions, and this fact is also responsible for the appearance of certain discrepancies in the above tables. Thus the mortality in cases reported as mild (7.14 per cent.) is greater than that in cases reported as severe (5.13 per cent.). There was only one death among the mild cases, the cause of which was not clear to the attending physician, but this one death has the effect of causing in the table the curious result noted.

Deaths.

Of the fatal cases, one was moribund when injected. One died of broncho-pneumonia, on the thirty-third day of illness, three weeks after complete disappearance of the membrane. The third fatal case, one of laryngeal diphtheria, was not seen "until a few hours before stenosis required operation (tracheotomy). In this case, there was temporary improvement after the first injection. The fourth fatal case, one of laryngeal and nasal diphtheria in a colored infant ten months of age, was brought from a distance to the office of the physician who administered the serum. Two injections, 500 units each, of antitoxin were given, resulting in some improvement. The child died on the day following the second injection, under circumstances not known to the physician reporting the case. In three of the fatal cases, no data whatsoever were given. In the eighth fatal case, attributed to heart failure, the attending physician, in making his report, states, "I think the serum must have had something to do with the cardiac failure."

TABLE V.—*Bacteriologic Examination.*

	Cases.	Cured.	Died.	Per Cent. Died.
Made ; result positive.......	23	21	2	8.70
" " negative......	*1	1	0	0.00
Not made..................	39	35	4	10.25
Not stated.................	37	35	2	5.40
Total..................	100	92	8	8.00

* Laryngeal.

TABLE VI.—*Day of Injection.*

Injected on	Cases.	Cured.	Died.	Per Cent. of Deaths.
First day of illness..........	3	3	0	0.00
Second day of illness.........	15	13	*2	13.33
Third day of illness.........	17	15	2	11.76
Fourth day of illness.......	9	9	0	0.00
Fifth day of illness.........	5	5	0	0·00
After five days.............	7	5	2	28.57
Not stated..................	44	42	2	4.54
Total...................	100	92	8	8.00

* Case noted in Table III.

The above report, showing a mortality of only eight cases in a hundred, in one of the most dreaded and hitherto fatal of the acute infectious diseases, is in keeping with the universally favorable statistics which have, from time to time, been tabulated and published from other sources, both in hospital and private practice. Although, from the number of reports received, it will be seen that Virginia physicians have followed a conservative course in adopting this method of treatment, yet the popularity of the remedy is steadily and rapidly increasing.

TABLE VII.—*Serum Used.*

Name of Maker.	Cases.	Cured.	Died.	Per Cent. of Deaths.
Behring	26	24	2	7.69
Roux	1	1	0	0.00
Parke, Davis & Co.	29	27	2	6.90
H. K. Mulford Co.	4	4	0	0.00
U. S. Marine Hospital	6	5	1	16.67
Not stated	34	31	3	8.82
Total	100	92	8	8.00

While appreciating the valuable assistance rendered the committee in this, the first attempt in the State to collect data relating to any special line of treatment, it was to be expected that the resulting report could not be wholly satisfactory, owing to the incomplete nature of many of the individual reports received. The difficulty encountered by the committee from this source emphasizes the advisability of physicians keeping a careful and accurate record of important cases, especially those treated by methods whose full value is still under investigation.

TABLE VIII.—*Initial Dose.*

Number of Units.	Cases.	Cured.	Died.	Per Cent. of Deaths.
Under 500	1	1	0	0.00
500-1,000	9	8	1	11.11
1,000-1,500	15	14	1	6.67
1,500-2,000	16	15	1	6.25
Over 2,000	2	2	0	0.00
Not stated	57	52	5	8.77
Total	100	92	8	8.00

A glance at the tables will show that upon even the most important points the information was, in many instances, deficient.

Thus the age of patient was not stated in 34 cases; type of disease, in 33 cases; severity of disease, in 27 cases; day of injection, in 44 cases, and dose of antitoxin, in 57 cases—yet, these are the five most important and vital factors in the compilation of statistics relating to diphtheria as treated by antitoxin.

In only 24 cases was a bacteriologic examination made. The importance of having bacteriologic conformation of the clinical diagnosis is, apparently, not yet as generally appreciated as it should be by the profession at large. In those cases where the diagnosis of diphtheria is obvious from clinical evidence alone, antitoxin should be administered at once without waiting for a bacteriologic examination. In doubtful cases, where the physician, though not positive, is inclined to regard the case as diphtheria, the same course should be adopted, especially if the case seem urgent. In that class of still more doubtful cases, where the ablest clinician is unable to arrive at even an approximate diagnosis, bacteriologic investigation is imperative, and should not be neglected if it can possibly be secured.

TABLE IX.—*Repetition of Injection.*

Was Dose Repeated.		Cases.	Cured.	Died.	Per Cent. of Deaths.
Repeated..... No. Units	500–1,000	3	2	1	33.33
	1,000–1,500	9	9	0	0.00
	1,500–2,000	4	2	2	50.00
	Over 2,000	*1	1	0	0.00
	Not stated	**37	33	4	10.50
Not Repeated..............		25	25	0	0.00
Not stated..................		21	20	1	4.76
Total................		100	92	8	8.00

* Repeated three times, 1,000 units at each Injection.
** One case repeated twice.

In all the above instances, however, even where antitoxin has been administered at once, the clinical diagnosis should be confirmed bacteriologically wherever practicable.

ABSOLUTE DEATH RATE FROM DIPHTHERIA AND CROUP PER 100,000 POPULATION.

Year.	Berlin.	Paris.	New York.
1886....................	125.7	73.2	187.5
1887....................	100.7	76.9	206.6
1888....................	76.1	83.7	167.7
1889....................	85.6	79.9	146.2
1890....................	102.0	77.5	110.6
1891....................	67.5	63.0	118.7
1892....................	92.9	63.6	123.3
1893....................	100.8	51.4	145.5
1894....................	86.7	40.7	158.5
1895....................	†59.7	17.7	105.2
1896....................	30.9	17.6	91.3
*1897....................	26.4	17.2	86.4

* Last quarter of year estimated.
† General use of antitoxin commenced.

From a critical review of the reports received the fact has impressed itself upon the committee that a certain degree of timidity still exists with many physicians in the employment of the remedy. The dose given in many instances is still too small, and the necessity of as early administration as possible seems to be not yet fully appreciated. With increased experience, and a more thorough understanding of the indications for its employment in the proper dosage, there is reason to hope that its usefulness will be still further extended.

Tuberculosis.

Your committee regrets that the information furnished upon the serum treatment of this disease in our State is so meager and incomplete that accurate deductions on the subject cannot be made. Of the 48 cases reported, five were cured, 13 improved, 13 unimproved, 15 died, and two not stated.

Concerning the five cases reported as recovered, no information was given as to stage of disease when treatment was begun; the diagnosis of cure was made upon the improvement in physical signs and the disappearance of tubercle bacilli from the sputum; two of these cases are stated to be in robust health and free from all signs of tuberculous taint.

Of the 13 cases improved, one was in the first stage of the disease, and under the treatment all symptoms improved, but the bacilli, although diminished in number, still persisted. Concerning the other 12 cases, no data were given.

Of the 13 unimproved cases—in one, a case in the second stage of the disease, treatment had to be discontinued on account of unfavorable action of the serum. Concerning the other 12 unimproved cases, no data were given.

Of the 15 cases terminating in death, one was in the first stage when treatment was begun; three in the second stage; five in the third stage, and six not stated.

In the majority of cases in which information upon the subject was furnished, untoward symptoms followed the injections and were apparently due to the serum.

In six cases, rashes of an internal, macular, or erythematous character were noted; in three cases, there were joint symptoms, and in three cases alarming attacks of general numbness, apnœa, syncope, or collapse, followed the injections.

From the information furnished in the reports received, it appears that serumtherapy does not, at the present time, offer any advantage over other methods of treatment in tuberculosis. Only one physician states that "serumtherapy is a great help to creosote, strychnia, etc., in the treatment of tuberculosis.

Tetanus.

Reports of only two cases of the employment of serum in this affection were received—one mild, the other severe—both terminating fatally.

Puerperal Sepsis.

The only instance reported of the employment of antistreptococcic serum was in a case of puerperal sepsis, following delivery by a colored midwife. The disease developed six days after delivery, and when treatment was begun, three days later, patient had a temperature of 103° F., pulse 148. Improvement began sixteen hours after injection, and was manifested by a fall in temperature of three degrees. In addition to the serum, the usual local treatment of curettage, douches, etc., was employed.

Conclusions.

Antitoxin is the most valuable remedy yet devised in the treatment of diphtheria.

Its use is especially valuable in laryngeal cases.

It should be employed at the earliest possible moment after a diagnosis is made.

The initial dose should be (according to the type and severity of the case) from 1,000 to 3,000 units of a concentrated serum, and should be repeated according to indications.

Local and other general treatment should not be neglected because antitoxin is used.

As a prophylactic agent, its value is unquestioned.

From the information furnished in the reports received, it appears that serum does not, at the present time, offer any advantage over other methods of treatment in tuberculosis.

The number of reported cases in tetanus and puerperal sepsis are too few to justify any conclusions..

ARTHUR JORDAN, M.D., Chairman.
LANDON B. EDWARDS, M.D.,
E. C. LEVY, M.D.

The committee desire to extend to the following members of the profession practising in this state their thanks for the report of cases and information: J. W. Baird, Carsley; S. B. Barham, Spottsville; W. H. Bramblitt, Pulaski; George Corrie, Blossom Hill; Joel Crawford, Yale; Jesse Ewell, Ruckersville; F. S. Harker, Richmond; Edmund Harrison, Richmond; Leonard Henley, Williamsburg; A. F. Kerr, Millboro; Jesse H. Peek, Hampton; John W. Scott, Gordonsville; John W. Simmons, Floyd; William S. Stoakley, Millboro Springs; T. J. Taylor, Walthall's Store, and J. W. Wallace, Covington.

SERUMTHERAPY IN PUERPERAL SEPTICÆMIA.—Wallich (*Annales de Gynecologie et d'Obstetrique*, November, 1897) concludes an important report as follows: (1) From an experimental point of view, employing Marmorek serum on animals inoculated (in their blood) with streptococci derived from puerperal infection, Wallich has not obtained regularly either preventive or curative results, especially with the serum used on women in 1896. (2) From a clinical aspect, Wallich fails to find sufficient modification in septicæmia morbidity and mortality in the Baudelocque clinic in 1896 to justify any definite conclusion. Marmorek serum was there employed most methodically. A much longer experience is required. The value of preventive serumtherapy is absolutely unknown. Therefore intrauterine treatment, which has been well tried, must not be cast aside in favor of curative serumtherapy by antistreptococcic serum. The bacteriologic diagnosis of puerperal infection is as yet hard to make in any clinical fashion.

QUININE IN MALARIA, EXCLUDING THE SIMPLE INTERMITTENTS.*

"*Wo viel Licht ist, ist stärker Schatten.*"—Goethe. (Where there is most light the shadow is strongest.)

By J. G. VAN MARTER, Jr., M.D., Savannah, Ga.

THERE is a vast difference between the action of quinine in the intermittent malarial fevers and its action in the continued malarial fevers, "the malaria subcontinua typhoidea" of the

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* Read before the Clinical Society of St. James Dispensary, Savannah, Ga.

Roman school, the malarial cachexia and the debatable "terra incognita" of malarial toxæmias seen in hot paludial countries.

This paper should properly have been preceded by papers and discussions on the etiology, pathology, and clinical varieties of the malarial toxæmias as seen by us in this climate. This would have enabled me to classify the action of quinine according to the pathology and clinical picture of each case. Such a discussion as this is an eminently fitting and proper one in our locality, and it is high time that a protest be issued against the general acceptance of the views of Osler, Thayer and other northern clinicians on the specificity of quinine.

Before entering into an argument upon the specific action of quinine, I wish to state that while Thayer in his recent work on malaria distinguishes three types of the malarial parasites: the tertian, the quartan, and the parasite of æstivo autumnal fever, I believe that it is safe to assert that there is more than one variety of parasite in æstivo autumnal malaria, and that these parasites have an entirely different action as regards the manufacture of toxines.

Under quinine the forms of the ordinary cycle of development disappear rapidly from the peripheral circulation, but the crescentic and ovoid bodies remain a much longer time, sometimes even for months.

In this paper I shall abstain entirely from a discussion of the treatment of malaria, either preventive or curative, but shall confine myself as closely as possible to the action of quinine, and we shall see whether quinine is a true specific or preventive of the various forms of malaria with which I have been acquainted, both here and in Rome (Italy).

Observations in the North.

Osler, Thayer, Councilman, and others in the North, speak truthfully when they say that quinine is a true specific against the malarial parasite and the malarias which have come under their observation, but as these gentlemen have not studied malaria in its true home, in a climate fitted for the development of the most virulent parasites, with infections occurring the year around, they are not fitted, by either experience or observation, to settle the question as regards the action of quinine in the malaria that we see here. This applies to the entire region south of Charleston, and the Gulf Coast.

In the first place let us see whether quinine is the best preventive of infection. It is so stated by northern writers, English, French and German authorities, but is this the case with those who live in the regions infested by the severer varieties of malaria? No, they find by experience that quinine cannot be taken indefinitely the year around in doses sufficient to kill the parasite as fast as it develops, and various peoples have adopted different measures to prevent infection, which prove. better for long continued use.

In some parts of Italy they find that a strong decoction of fresh lemons will prevent infection, while in other regions of Italy the continual use of small doses of arsenious acid act well, while in India, Assam and Cochin-China, the natives working in the rice fields and subject constantly to severe infection, find that opium will prevent malaria where quinine fails. This to me is very suggestive, being far better evidence upon which to base conclusions than the mere hypotheses of northern observers; or the passing observations of travelers, who, of course, can take quinine for a few weeks or months.

Now, coming to the treatment of malaria (and, of course, I am always speaking of the severe infections and leaving out of the question the intermittent fevers), is quinine a true specific? No, there are cases innumerable in which the patient would die did we not add other potent drugs to our quinine, or for a time at least attach more reliance on other drugs than quinine, that we are inevitably led to the conclusion that although a true specific against the plasmodium of tertian and quartan fever, it is not a specific or antidote to the parasite of the more severe continued malarias and the toxines generated by them. With patients in whom the microscope has shown the disease to be malaria in any of its forms, quinine is a specific in all those with intermissions or with marked remissions; not so, however, where the fever is continued, or in those malarias with but little temperature.

In the continued fevers toward the last stages, marked remissions are apt to occur (in the milder cases); here again quinine becomes a specific. There are, however, exceptions even to this rule, for it is no uncommon thing to see a patient with intermittent fever to whom quinine has been properly administered, have a distinct malarial paroxysm with the ears ringing from quinine.

Dr. Plehn, a German physician practising in the Cameroons on the west coast of Africa, and in what is probably the most malarious region on this earth, has observed that quinine is a good preventive, and the best for treatment in newcomers and those not long resident in that region, but in spite of 5 grains per diem, practically all foreigners get the fever, and the large majority die of it sooner or later. In all these cases, with the exception which I shall hereafter note (the hæmaturias) quinine is given in enormous doses, with calomel (which, by the way, is never omitted) and stimulants, but while the actual paroxysm is overcome by the quinine (if the case be seen in time, or not too malignant), the spleen remains large, the crescents remain in the blood, and malarial anæmia sets in.

Treatment of Malaria.

What does this interesting observation show?

1. That quinine is a specific against the protozoön of tertian or quartan malaria.
2. That it inhibits, for a time, the development of the protozoön of pernicious malaria, but does not kill it; nor in time, even with quinine constantly taken, prevent its development, every time the patient catches cold, or is exposed to a particularly severe contagion.
3. That quinine alone has no action on the toxine produced by grave malarias over which calomel has twice the potency (at least in full physiological doses).
4. That quinine even as a prophylactic cannot be indefinitely taken.
5. That quinine has no effect whatsoever on malarial anæmia (really a chronic toxæmia).

Another very interesting form of protozal "malaria," beri-beri, is not cured by quinine, although slightly benefited for a time, if the febrile manifestations are sharp. In this malignant form of disease, the pigment bodies seen in our own malarias are deposited in the brain and other nerve tissues, and these pigmented bodies either before or after degeneration produce a toxine absolutely unaffected by quinine. In the recent epidemic at the Insane Hospital, Tuscaloosa, Ala., reported by Dr. Bondurant in the *New York Medical Journal,* it is stated that quinine failed in every case to do any good. It is to be regretted that special work on the etiology was not done, and establish the fact of direct relationship of the sporzoöns supposed to cause beri-beri.

Still another variety (more correctly complication) of malaria, hæmoglobinuria, is made worse by quinine. I believe that the great majority of those practising in countries where severe malarias exist will confirm the observation that quinine makes it worse. Thayer admits that quinine never shortens an attack of hæmoglobinuria, but says it prevents a recurrence—this latter being an assertion without any warrant of experience, and I know it to be wrong. Quinine is a frequent cause of hæmoglobinuria, and after one attack, if quinine be taken, is very apt to cause the condition which Thayer says it will prevent.

In my experience the cases of malaria (as proven by the microscope) in which quinine failed to cure—hence did not act as a specific—have been confined to two types. First, and most common, severe malaria subcontinua typhoidea (an æstivo-autumnal form), where the fever ran along for days with very slight remissions; and second, those irregular forms, sometimes seen where, with undoubted malaria, the fever of a continued type is low, seldom above 102, the symptoms presented are those of a profound toxæmia resembling uræmia; suppression of urine, jaundice, delirium, subsultus, without chills or paroxysms of any kind.

I will observe here that there are cases of both types, above mentioned, that would surely die, did we not add other drugs to our quinine, and that a large proportion of cases for a time at least are better off without it. We must recognize that in these types we have a toxæmia to deal with, and it is just this toxæmia which I claim is unaffected by quinine.

In treating these very severe malarial toxæmias as we see them in the country or plantations just out of town, or if nearer, only in the suburbs, or on river sailors, we are placed at a great disadvantage as regards doing the best possible for our patients. Perhaps in these very cases if our patients could be moved away from an atmosphere whence constant reinfection is taking place, and taken to a grand hospital like the Johns Hopkins, in Baltimore, where the poor, even, can obtain luxuries, and under skilled trained nursing, perhaps in such cases quinine might help our patient if proper eliminative treatment were added (for it would not without it); but how is it with us, the patient in a miserable hut, or poor farm house, not a bath tub in miles, no clean bed linen, no decent drinking water, no chance of proper food or good nursing, and an unalterable opposition to hospitals in general. It is in these cases, gentlemen, that we have to practice, for it is only amongst such that we see most of our severe malarias, and if quinine were a specific they would all be cured before we ever saw them. They all take plenty of quinine dissolved in water, and with it calomel.

I have tried, in the severer cases, quinine intravenously, and must say that it does act well, that it is the only way to give it in the severest forms, but it does not shorten the course of the fever; it seldom breaks it up, as it should if it were a specific.

Were it not beyond the scope of this paper I should have enjoyed relating my experiences this summer and fall in the treatment of some severe cases; in fact, I am preparing a paper on the results obtained by using the formula used by Woodbridge and others in the treatment of typhoid fever. I was very much struck by the uniformly happy results obtained, and in many instances never used quinine from beginning to end of the fever; commencing it in convalescence on two-grain doses three times a day. I should like to see the subject of treatment taken up by this clinical society, as I should the prevention of malaria. If practitioners of experience around here are not competent to speak on the treatment of malaria, who could be?

I am one of those who believe that quinine is seldom properly administered. It is not the amount, but the way you give it that counts. Give it with an acid if the stomach will stand it, or else, if you still desire to give it by the mouth, give it in the effervescing form recommended by Burney Yeo. I quote from him as follows: "We may state in this connection, that we have found the efficacy of quinine in febrile states very much influenced by its mode of administration. If we prescribe the quinine dissolved in citric acid, and given in effervescence by adding it to an alkaline mixture, doses of two or three grains exert a powerful antipyretic influence far greater than that obtained by the same quantity of quinine given in the dry state. We have seen abundant reason to believe that in infective fevers, if quinine be given in saline solutions, it is the most active and reliable antitoxine we at present possess."*

The use of a strong decoction of lemon in the early morning is a very useful remedy, but I cannot branch out to speak of its action, because that would be exceeding the limits of my subject.

There is one way of giving quinine by the mouth, of particular efficacy in many of the severe varieties, and that is Warburg's tincture, and, to my mind, it is a most excellent medicine.

Value of Warburg's Tincture.

One very strange observation that I have made is worth relating. I had a patient with occasional severe attacks of malaria, who, for some reason or other, never seemed to get the physiological effects of quinine; in other words, he never had ringing in the ears. Thinking that the quinine was not being absorbed properly, although I had given it in various ways, I gave him several hypodermics, by the method I shall further on describe, and failing in this, I put him on big doses of the Warburg's tincture, and strange to say, one ounce of Warburg's tincture made his ears ring. This extraordinary phenomenon has often been a source of perplexity to me, and in reasoning about it, have come to the conclusion that something in this compound may act in a slight measure as an antitoxine, or in some way so modify the chemistry of the blood, as well as the activity of the glandular and eliminative system, as to give quinine a chance. Is it not true, perhaps, that quinine meets with resistance in the blood which is in some way modified by that complicated mixture—Warburg's tincture? Gentlemen, this is a very interesting subject upon which much remains to be known.

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* Burney Yeo, *Clinical Therapeutics*, Vol. II, page 637.

Warburg's tincture should always be given, as recommended by the experienced practitioners in India, after a brisk purge, undiluted, in doses of half ounce, all drinks withheld, repeated in three hours, and the patient carefully rolled up in blankets to encourage the profuse aromatic perspiration which follows. It is one of the most powerful diaphoretics known, it is also a diuretic, a stimulant and a purgative. I always follow its use by opium, and small doses of whisky, at least never omit the opium, which I believe acts most happily. Recently, I have used the powdered Warburg's tincture put up in elastic capsules, by Messrs. Parke, Davis & Co., an elegant preparation, far more agreeable to the patient than the liquid, but I am far from convinced that it compares to the liquid preparations obtainable in England, for our American preparations of the liquid do not act as well as the English.

Quinine, by the rectum, I do not favor, and shall not speak of tonight, nor shall I say anything about inunctions, for that is a very uncertain way of giving it, but of the hypodermic method I am a great advocate. In giving quinine subcutaneously, let me urge you to use it in free solution, and not stick to your small hypodermic syringes. I am now using what is usually called an "antitoxin" syringe with a 16 c. c. capacity. By making a very dilute solution more quinine is promptly absorbed, and there is absolutely no danger of abscess or painful inflammations. You should not use an acid to dissolve the quinine, as is advised by most writers, for it is not necessary, and is very painful. The dihydrochlorate and hydrobromate of quinine are the two salts best adapted for such use, and also for intravenous injection. The water should be hot, about 100° F., and the needle sharp. Whenever in any case of malaria the gastric symptoms are marked, and this is frequent, use the hypodermic method in the commencement. You are then sure that the patient is getting all the quinine you want him to have promptly, and without additional burdens on the stomach. I have never seen but two abscess (and they were not in my practice) from hypodermic injections of quinine; one due to an excess of acid, the other to a filthy syringe. Don't inject in the arms. The belly wall is a very handy place to inject your solutions, and never bothers the patient, like it does in the thighs or back. Use from 8 to 10 grains at each injection, and if the quinine does not work promptly don't pin too much faith in it, nor that absurdity called the therapeutic test—a relic of barbarity.

Intravenous Injection of Quinine.

Intravenous injections of quinine you are all more or less familiar with, at least as regards technique, which is simple, but I find a good deal of hesitation amongst a great many physicians as to its use. Fear of its difficulty, of slipping up in asepsis or admitting air in the veins; all points easily avoided and overcome. Having been brought up, you might say, on this method of using quinine, and having seen its development in the Santo Spirito Hospital, Rome, in the service of Baccelli, I have had very good opportunities of seeing it practised. Here, as elsewhere in this paper, I shall have to remind you that as this is not a paper on the treatment of malaria, I must refrain from describing the method, its indications, advantages, but simply its action.

We get by an ordinary injection what for the blood is a very large amount (15 grains), and I honestly believe that if we could see our cases early enough, all cases of pernicious malaria of a fulminating type could be saved; but, alas! we seldom see them early, for such cases come in town from the country "in extremis"—this at least is the common experience in Rome. Once the plasmodia have had time to fully manufacture their toxin, it is too late to rely on quinine. As, however, I have seen several cases recover after intravenous injections in the last stages, you may well ask how it is that they did not die too. Gentlemen, I attribute a good share of some (not all) the recoveries to the happy effects of quinine, but some are due to the salt solution injected at the same time. It has never yet been done by control experiments, but I have no doubt that if you gave some of these cases a large intravenous injection of normal salt solution, say 20 ounces, and no quinine, you would get as good results as you could by quinine. I know, from experience, that this will start secretion in the kidneys, the only channel by which the poison escapes in this condition. Any observing man whose misfortune it has been to have a number of severe pernicious malaria cases in his practice, will agree with me when I state that if you can set up diuresis, sweating and purging, while vigorously stimulating the patient, he is apt to live, quinine or no quinine; and on the other hand, without this, but all the quinine you please, the patient will die. It is the common experience we have with every poison from malaria to rattlesnake bite.

Let us not say a thing is so because the books written by great teachers say it is so. Let us observe, reason, and then if we are not satisfied of the accuracy of a statement let us say so. The last words have not yet been spoken on the specific action of quinine in malaria (in our climate), and in the same breath I will say *the* book on malaria has not yet been written. I know quite well that there will be wailing and gnashing of teeth over the presumptuousness which could question the specificity of quinine, but the truth will out, and I feel confident that many will agree with my views on this subject.

Conclusions.

To summarize briefly my conclusions are:

1. As a preventive quinine will not do for those who are compelled to live indefinitely in a severe malarial climate; in time acting as a vaso-motor poison.

2. Quinine acts nearly as a specific in all malarial fevers characterized by intermissions or well marked remissions, but fails in the continued fevers, those with typhoid-like symptoms, those malarias without temperature, and the cachexias and anæmias due to malaria.

3. Proving thus that quinine is a poison to the plasmodium itself, but useless against the toxine manufactured by it.

4. That Warburg's tincture in the last condition has an action not

yet understood, on the toxine (or the eliminative system) by which the system is put in condition to benefit by quinine.

5. That quinine should never be used in hæmoglobinuria, or given subsequently, to one who has suffered from it, being liable to bring about a recurrence of the condition.

6. Only those living in regions of severe malarias can become competent to settle these questions pro or con.

THE EARLY SYMPTOMS OF PUERPERAL INFECTION.—Ferré (*L'Obstetrique*, ii, No. 5, p. 425, September 15, 1897) points out that the general notion of the sudden onset of marked symptoms of puerperal infection after a longer and shorter period of silent incubation is inexact. Even in the period of incubation important, although attenuated, symptoms may be present, and their recognition will greatly conduce to successful treatment. These early symptoms are: slight elevation of temperature occurring once (or twice) daily, and usually in the evening; a pulse rate of 80 or more, especially if in the morning, when the temperature is not yet raised; relative or absolute insomnia, which is a very important indication of serious infection and requires careful inquiry; headache, at first intermittent and slight, usually always in association with the other symptoms mentioned; sometimes diminution or suppression of the lochial discharge, although as a rule this is a later manifestation; and, finally, vague impressions of cold, but not usually a distinct rigor. The later symptoms, such as marked rigors, high temperature, local pain, etc., are well known; it is to the recognition of the early symptoms that we must trust for the successful treatment of such cases.

DIGESTION VERSUS DRUGS IN THE TREATMENT OF PULMONARY TUBERCULOSIS.—Fisk (Transactions of the American Climatological Association, 1897) again inveighs in his forcible manner against polypharmacy and useless drug-giving in cases of phthisis. He believes that digestion should be protected at all hazards. Frequently he has seen patients—taking many drugs and failing rapidly because they had no appetite and could not digest what they ate—improve rapidly when the digestive tract was cleared by the use of calomel.

By digestion he means the ability to eat, to assimilate, and to eliminate—in short, to nourish properly.—*University Med. Magazine.*

ADDRESS

SEGREGATION FOR THE TUBERCULOUS.*

By N. S. DAVIS, Jr., A.M., M.D., of Chicago.

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That tuberculosis is an infectious malady needs no argument today. That it is a preventable disease, or at least a disease whose spread is controllable, is admitted quite as universally. The question of chief interest to the student of preventive medicine is, "What is the means to be employed for accomplishing its prevention or hindering its spread in the community?"

Infectious diseases may be placed in three categories; those in each require somewhat different measures for their prevention. In the first category may be placed the strictly contagious diseases—those the cause of which is either in or upon the patient, and is communicable by contact or close association with the sick one. The second category includes the non-contagious infections, such, for example, as malaria, the cause of which is in the patient, but is not communicable by contact with him nor by secretions or excretions from him. The third category includes a much larger group of diseases, which may be looked upon as connecting links between the other two. They are the infections which are indirectly communicable by food, drink, or air, contaminated by the excreta of the sick. In this category may be placed tuberculosis, diphtheria, pneumonia, cholera, and typhoid fever. Some of this last group, as for example diphtheria, are so extremely liable to contaminate the air and the clothing immediately about the patient, that they seem almost as communicable as the first group of diseases. Typhoid fever typifies the opposite extreme. It is a disease, association with which is little likely to cause infection.

That those who have a contagious disease, or one of the most easily communicable of the last category, must be submitted to segregation in order to prevent its spread, is undoubted. Segregation is useless in diseases of the second category. As it is so efficient for the prevention of the truly contagious diseases, one naturally asks, "Can it not be applied with equal efficiency to the prevention of the less infectious maladies in the last category of diseases, for example, to the prevention of the spread of tuberculosis?"

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* Address delivered before the Practitioners' Club of Chicago, October, 1897.

Is Segregation Necessary?

Is segregation, or isolation, of those suffering from pulmonary tuberculosis possible or necessary? The first of these questions must be answered in the negative, for these reasons: Very many of those who are infected by the bacillus tuberculosis do not know for weeks and sometimes for months that they are so infected. This is because the inflammatory lesions which the bacillus provokes are so limited and so mild in character that their existence is not suspected by the patient, and a physician is often not consulted. Many others suffer from the malady in a mild form, or it may be in a quiescent state for years at a time. They possess the strength, both mental and physical, to be useful citizens. To force them to isolate themselves or to segregate with other tuberculous persons only would be to imprison them for justifiable cause, and would work great hardship not to them as individuals only, but to their families, and sometimes to whole communities. Take as an illustration a condition very commonly met: The head of a household has tuberculosis in its mildest and most chronic form. Although suffering from the malady, he is able to provide for his family by his daily work. If in his case isolation were enforced by law, his family would be left unprovided for, and would be a burden to the community. Men of greater wealth are oftentimes in the same condition. If they were compelled to discontinue all oversight of their business, not infrequently the doors of shops and factories that employ whole communities would be closed. To such individuals, laws enforcing segregation would be so burdensome that they would surely be evaded. Indeed, this has been the experience of attempts in times past to enforce such laws. A few years ago Germain Sée called attention in an interesting essay of his, to laws that were in force 300 years ago in Portugal and Naples, which required that all cases of tuberculosis should be reported to the civic authorities, and demanded that the sufferers from this disease should be isolated, and that after death their clothing, bedding, and other such possessions should be destroyed. The penalties imposed upon physicians and family connections who refused to report such cases and to execute these laws were severe. In spite of this, however, the laws were pertinaciously evaded, and the mortality from the disease in these communities was in no way lessened. Laws demanding the segregation of the tuberculous are practically unenforceable. Nor are they necessary.

The Tuberculous Patient is Not a Source of Contagion.

It is not his body, nor clean clothing, nor clean air, that may be about him that is infectious; it is the sputa in the cases of pulmonary tuberculosis and other secretions in cases of other kinds of tuberculosis, that carry the infectious matter. If these secretions can be prevented from contaminating clothing, bedding, floor-coverings, and the air about patients, all danger of association with them is removed. By thorough cleanliness this can be accomplished. The greatest difficulty is experienced in collecting and destroying the sputa of the tuberculous; for, unfortunately, even in most civilized communities, people have not been taught to be as clean as regards the disposition of sputa as they should be. The bad habit, possessed by both the sick and the healthy, of expectorating upon the ground and upon the floor, especially in public places, and upon handkerchiefs, can only be corrected by persistent and long continued instruction. Such instruction is daily accepted with greater readiness, for already well-educated communities appreciate the danger that comes from such uncleanly habits. In rare instances individuals suffering from tuberculosis are met, who are extremely ignorant, or extremely careless as regards their own welfare, and thoughtless as regards the welfare of others, who will not carry out instructions that may be given them in regard to the destruction of their sputa. The existence of these cases and the existence of many who have the disease for weeks and months without knowing that they have it, and who unwittingly will drop infected sputa upon floors and elsewhere, where when it is dried it may contaminate the dust of the air, make it an impossibility to completely prevent the spread of the disease; but as the great majority of those who are infected are perfectly willing to take proper precautions to prevent the infection of their own families and friends, the frequency of the occurrence of the disease can be greatly lessened. I find that individual patients take greater pains to collect and destroy sputa, when they are told that a failure to do so not only endangers those about them, but increases the dangers of disseminating the disease more widely and more rapidly in their own lungs. It is unquestionably true that tuberculous patients infect, with great frequency, healthy portions of their own lungs and produce new foci of tuberculosis by breathing air which they have themselves contaminated by the bacillus tuberculosis.

While the medical profession must do its best to educate the community in regard to the necessity of collecting and destroying infected secretions—and in parenthesis I may say that this necessity does not apply to tuberculosis only, but equally to pneumonia, typhoid fever, cholera, and the other diseases that belong in the same category—it must also urge the enactment and enforcement of laws which will help to prevent its spread. The first of these should demand a careful inspection and analysis of foods, milk and other beverages that may contain the bacillus tuberculosis and be a means of communicating the disease to man and the destruction of foods that are found to be infected. Without doubt milk is, for little children, a frequent source of infection, and for adults an occasional source of infection. Laws should also be enforced to prevent the construction of dark and badly ventilated rooms, or the occupancy of such as already exist as a residence or as bedrooms. It is generally admitted that houses do become infected by tuberculosis, and numerous instances might be cited of the infection of successive tenants of a given building, or of certain rooms. Some years ago it was found in England that the soldiers inhabiting certain old barracks suffered in larger percentage from tuberculosis than the surrounding community. The old barracks were destroyed and replaced by new ones, when immediately the mortality among the soldiers inhabiting them fell to the lowest point observable anywhere in England; was lower instead of higher than in the community about them. This is only one, but it is a striking illustration of house-infection by tuberculosis. If dark rooms are inhabited they are usually occupied by the dirtiest and most careless members of the community, by those who are least likely to take pains to prevent the contamination of their rooms. Moreover, if they wished to prevent it, it would be quite impossible for them to do so in the dark or in half-light. If rooms are not well ventilated and well lighted the air in them cannot be kept clean. For these reasons, such apartments should never be constructed.

It is to be hoped that in times to come an efficient public medical inspection of school-children may be effected which will discover those who by inheritance are peculiarly liable to tuberculosis or by imperfect physical development or bad modes of life have acquired a predisposition to it, and that these children may be submitted to physical training and their parents advised of the regimen which will most certainly enable them to outgrow the tendency to disease which they have.

Enforced Segregation Impossible and Unnecessary.

While enforced segregation seems both impossible and unnecessary, there is a form of voluntary segregation which can be most highly recommended. I refer now to the treatment of pulmonary—tuberculosis in sanitaria—a mode of treatment which is growing in popularity. The good results of it have been demonstrated by years of trial in the famous sanitaria for tuberculous patients of Görbersdorf and Falkenstein in Germany. Very many of the patients treated in them have been cured; and the rapidity of the spread of the disease in others has been lessened, and their lives and usefulness greatly prolonged. This is due to the fact that a band of invalids can be organized so that they will take just so much, and just such kind, of exercise as is best for them; so that they will get so much rest, and get it when it is best for them; and so that they will get such food as they most need. Newcomers fall readily into the general routine of life and learn quickly from the others how they should live. Moreover, when they enter such institutions they do so expecting to remain for months and possibly for one or two years, and during that time to submit themselves to that regimen which experience has taught it best for them. They cannot under such circumstances help learning how they should care for themselves. These sanitaria have the additional advantage of being climatically well placed.

I believe that we could accomplish for our patients living at home almost as much as for those dwelling in sanitaria, if only we could exercise over them the same supervision, and thereby educate them how to care for themselves, and if only we could have them as long under treatment. It is the universal experience of the profession that 90 patients out of 100—I had almost said, 99 out of 100—who suffer from tuberculosis shift from one physician to another, at the end of about three months of treatment. They do not, therefore, get a systematically planned course of treatment from any one. It is as much the duty of the profession to educate the public to appreciate the fact that tuberculous patients will be best treated if they are treated continuously over long periods of time by one physician, rather than intermittingly and irregularly by many, as to educate it to habits of cleanliness in regard to sputa. This can be accomplished, just as it has been accomplished in the treatment of syphilis. The public must be taught also that when the disease is quiescent and patients seem almost well they still need oversight and that at this time suitable hygienic treatment will accomplish the most towards affecting permanent recovery. The public must learn that tuberculosis is pre-eminently a chronic malady, and that it requires not weeks, not months, but several years of treatment, according to a carefully planned regimen, to effect a cure.

ASTHMA TREATED BY ANTIDIPHTHERIA SERUM.

L. Revilliod (*Rev. Med. de la Suisse Rom.*, November 20, 1897) was induced to try antidiphtheria serum in the treatment of true spasmodic asthma (asthma from organic chest lesions or nasal polypi, etc., is not included in this) by the following considerations:

(1) An asthmatic attack is probably an attempt to eliminate by the respiratory passages a volatile poison, which is at the same time the cause of the attack. (2) The classical drug for asthma, namely, iodide of potassium, is excreted by the respiratory tract, and probably acts by facilitating gaseous excretion, and rendering unnecessary the athmatic dyspnœa. (3) Antidiphtheria serum, apart from its specific action on the diphtheria toxins, is excreted by the respiratory tract, as shown by its effect in loosening the false membranes. An outward excretory current is thus set up, and the vitality of the mucosa modified, just as is the case with iodide and chlorate of potassium. (4) Iodides, antidiphtheria serum and asthma have this in common—that they all frequently produce rashes, which shows that the skin as well as the lungs in an excretory channel. (5) This treatment need not violate the fundamental doctrine of serumtherapy. For diseases apparently different may be allied in one or more points, and thus it is that quinine cures other diseases than malaria, mercury than syphilis, and that chlorate of potassium acts as well in ulcerative as in mercurial stomatitis. In accordance with this Revilliod finds that antidiphtheria serum has an action as brilliant in streptococcic as in diphtheritic angina. Seven cases of asthma were thus treated with the following results:

(1) Three cured; (*a*) male, aged 24; asthmatic attacks every night for six years; respiration always noisy and shallow; numberless methods of treatment without result; complete cure after ten injections of 10 c.cm. of Roux's serum spread over five months. No relapse when seen 6½ months later; (*b*) female, aged 40, rheumatic subject, asthmatic attacks every night for 7 months; other treatment without effect; cured by three injections of 10 c.cm. of the serum in ten days, and remained quite well when seen five months later; (*c*) male, aged 36; asthmatic and short of breath since bronchitis eight years ago; for last month attacks every evening between five and eleven, and at other times if fatigued, etc.; other treatment unavailing; cured by six serum injections in two months. (2) One permanently relieved; male, aged 56; asthma 44 years; three injections in ten days. (3) Three cases temporarily relieved, but the treatment was not always persevered in. The injections cause at first the attacks to be less severe, then at greater intervals. An injection was usually given whenever an attack threatened.

SELECTED ARTICLES.

THE USE OF HYDROCYANIC ACID AS AN ANTIDOTE TO CHLOROFORM.*

By FREDERICK HOBDAY, F.R.C.V.S.,
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The extreme frequency with which records of death from the anæsthetic administration of chloroform appear in the professional journals must make welcome the addition of another antidotal agent to the list of those with which we are already acquainted. The idea of using hydrocyanic acid as an antidote to chloroform first suggested itself to me about two years ago when watching the different effects of the two drugs upon the respiratory tract when used to produce death, and particularly from having observed the powerful and rapid excitant result which follows absorption of a toxic dose of the acid. In 1896† there was published in detail a list of some forty-three observations upon various animals, including dogs, cats, a horse, sheep, and calf, showing the results obtained by this method of resuscitation and also a few cases illustrating the palliative and sedative effects produced on the respiratory efforts by chloroform inhalations upon animals suffering from overdoses of hydrocyanic acid. Since then I have been able to collect fifteen additional consecutive cases in which it has been successfully used in the College canine clinic after respiration had actually ceased, and I have also had confirmatory reports of its antidotal value from veterinary practitioners in various parts of the country. The results have certainly been in the highest degree satisfactory, so much so that when chloroforming animals the only antidotes we now have at hand ready for use are those of hydrocyanic acid and liquor ammoniæ fortior. As soon as breathing ceases or becomes dangerous artificial respiration is resorted to, the tongue being continuously pulled well forward in a jerky manner and a full medicinal dose of Scheele's acid placed as rapidly as possible at the back of the throat. When respiration has re-commenced the ammonia vapor is applied cautiously to the nostrils and in the majority of cases a safe termination ensues.

The Lancet.

† Journal of Comparative Pathology and Therapeutics, June, 1896.

The method of artificial respiration preferred is that of laying the animal in a horizontal position on its right side and pressing the ribs in a short, sharp, jerky manner; we have tried everting the body, but I am convinced that this is a bad method in the dog and cat, as the intestinal organs press upon the diaphragm and limit the capacity of the thorax. We have also tried placing the body in the opposite position with the idea of removing all pressure of the abdominal organs from the thorax and its contents, listening carefully at the same time in each case to the heart sounds with the phonendoscope, but I am firmly convinced that the heart sounds are stronger and less labored when the body is placed horizontally.

When reasoned out theoretically, in addition to the results of practical work, hydrocyanic acid stands foremost amongst agents likely to prove of antidotal value; for what more rapid or powerful respiratory stimulant have we? Its use is attended with no more danger than that of strychnia—in fact, in the dog and cat with far less. Its rapidity of action is unquestionable, it is easily absorbed from any of the entrances of the body, and it has the advantage over ammonia that it does not irritate the tissues to which it is directly applied. Besides these things, not only has it an immediate effect in starting the respiratory mechanism, but when once this has commenced the stimulating effect of the acid is maintained for twenty minutes or half an hour and keeps it going until the breathing is able to resume its normal aspect and the patient is out of danger. I am aware that many cases will recover by the aid of artificial respiration alone, but I am perfectly convinced from tests applied to this point, and from an extensive experience of the results we used to obtain with other antidotes before hydrocyanic acid was tried, that the use of the said acid gives an enormously higher proportion of successes. When compared with hypodermic injections of strychnine, ether, or saline solution, or the use of amyl nitrite or ammonia vapor, its effect is visibly much more rapid and powerful. Scheele's acid is of course more rapid and powerful than the British Pharmacopœia acid and acts best when given undiluted.

With reference to the method of administration the best way to apply it is undoubtedly by means of a graduated drop tube on the back of the tongue. Hypodermic injection does not seem to give such good and rapid results, and the direct forcing of the vapor up the nostrils by means of bellows is decidedly dangerous from the risk of administering an overdose. Full medicinal doses are necessary, as when an animal is under chloroform the effect of the acid is not visible quite so quickly as when no chloroform has been used. If an overdose be given the judicious use of the anæsthetic vapor will combat and quiet the spasm of the respiratory muscles until the excess of acid has had time to become eliminated from the system. In several cases we had opportunities to test this before experience taught the exact dose. This latter averages in the dog and cat about one minim of Scheele's acid for every seven or eight pounds of live body weight. The object must be to give just enough acid to produce the preliminary excitant effect upon the respiratory center, and, of course, like all antidotes, the sooner it is administered after dangerous symptoms have appeared the more likely is the result to be favorable.

The last two cases in which the acid was used are fairly typical of the others and illustrate the effect.

Case 1.—A Scotch terrier, female, six months old, was being operated upon for the reduction of an umbilical hernia. After the animal had been under the influence of chloroform for eighteen minutes respiration suddenly ceased, the heart still continuing to beat. The restraint of the operating table was at once removed and the animal placed in a horizontal position, lying on the right side. One minute after respiration had ceased three minims of Scheele's acid were administered on the back of the tongue, the latter organ being drawn well forward in a jerky manner, and artificial respiration started. Respirations did not re-commence until two and a half minutes later, but they speedily became strong in character, and four minutes after this the patient was quite out of danger.

Case 2.—In a mongrel beagle, female, about nine months old, respiration ceased suddenly(10.49 A. M.) . While the restraint of the operating table was being removed the breathing re-commenced (10.50 A. M.). Thinking that the animal was recovering, no further antidotal measures were then taken, but at 10.15 A. M. the respirations became faint and again ceased. Fifteen seconds later four minims of hydrocyanic acid (Scheele's) were placed on the back of the tongue and artificial respiration was applied. Twenty-five seconds after this the respirations re-commenced and this time they were maintained, speedily becoming strong and the patient making a good recovery.

The Cause of Scurvy.—The experience of Nansen's expedition has given rise to discussion on the causation of scurvy. Torup believed that it is due to ptomains generated in badly preserved foods, and great care was taken in selecting the preserved foods on which Nansen's party lived, with complete success. A. E. Wright shows that the herbivora have no protection against acid administration in their food, and quickly die if it is given artificially. In the carnivora there is a provision for neutralizing acid by the waste ammonia of the body. In the human being this is less perfect, and if all vegetable food is cut off we should get an acid intoxication. But Nansen has shown that fresh blood and raw flesh are an antidote, and Wright says that this is easily explicable, because blood is not only alkaline, but it produces salts akin to those obtained from lemon juice. However, as the explorers were often without fresh blood and flesh much of their time, the immunity may have been after all due to the carefully preserved foods which they consumed.—*Medical Record.*

For the Vomiting of Pregnancy.—Pozzi reports good results from the treatment of this affection by means of hypodermic injections of cocaine in the epigastric region, and states that this method has proved successful after hypodermics of morphine and the internal administration of cocaine had been unsuccessfully tried. He injects one-sixth grain of cocaine once or twice daily immediately before meals in the region mentioned. The improvement is permanent, and no unfavorable concomitants have been noted.

CARBON DIOXIDE AND ITS USE IN SOME FORMS OF STOMACH TROUBLE.[1]

By L. H. WATSON, M.D., Chicago.

Before considering carbon dioxide as a remedial agent in the treatment of stomach troubles, it may be best, perhaps, to view the therapeutic uses to which it has been put by those who have experimented with it in the past. The medical literature from which we must draw is not prolific except as regards its local uses. Text-books upon physiological chemistry refer to CO_2 as a toxic agent. Almost the first mention I can find of its advocacy in medicine is connected with the use made of it by Sir J. Y. Simpson[2] as a local anæsthetic in erosions and ulceration of the cervix uteri. After this, it seemed to have fallen into a state of "innocuous desuetude" until revived by Bourgeon[3] as an injection into the rectum for the treatment of incipient phthisis. Here, again, although experimented with by many clinicians, it seems to have proved unsatisfactory. At various times it has been used mixed with oxygen as an inhalation in croup, asthma, and whooping cough. Huxley once called attention to its use for this purpose, and objected to its wholesale denunciation as a poison. In a paper read before the British Association in 1870, and published in the *Asclepiad*, Sir Benjamin Ward Richardson[4] made some remarkable statements in regard to carbon dioxide, which created much attention in the medical world at the time, and are worthy now of careful consideration. He says: "Until recently I had looked upon CO_2 as an excrete, but now, after many experiments, my opinion has completely changed, and I am fully of the belief that carbon dioxide has its uses. It may be a poison, so is oxygen, but it certainly has real value in the economy." He observed that when a stream of carbonic acid gas is allowed to fall upon a mass of defibrinated blood, the blood became dark, and remained so if kept from the air. When exposed to the atmosphere, it instantly changed to a bright red. He theorizes that the blood holds the CO_2 until it meets with the oxygen of the air, when there is a displacement by catalysis, and the oxygen is absorbed. This explanation suggests that in the process of life CO_2 is absolutely necessary to the blood to enable it rapidly to undergo oxygenation. The relation of oxygen to the blood has been satisfactorily determined, but in what way CO_2 is combined or held in solution is yet, in a large measure, to be discovered. It is evident that until a complete theory of the gaseous exchanges between the tissues and the lungs is formulated the problem will remain unsolved.

Alexander Schmidt[5] has found that carbon dioxide is a most important antifermentative agent in the formation of fibrin. As fibrin in living tissues is eliminated by the kidneys, he suggests that carbonic acid waters and those articles of diet which easily set free CO_2—such as the carbohydrates and vegetable acids—be used.

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[1] *New York Medical Journal*, January, 15.

[2] *New York Journal of Medicine*, 1856.

[3] Bourgeon. *Bull. gén. de thérap.*, 1887.

[4] *Asclepiad*, 1889, vol. vi.

[5] *Centralblatt f. Phys.*, Leip. und Wien, vol. viii.

Bohr[6] has shown that hæmoglobin absorbs large quantities of carbonic acid. Dr. A. Montefusco[7] finds that CO_2 is destructive of microbes in drinking water. Peyraud,[8] Ephraim,[9] and Ewald[10] all speak well of its therapeutic uses in mineral baths, the prinicpal statements of these eminent clinicians being for its stimulating qualities to the skin and its admirable results in chlorosis, anæmia, and impotence. Dr. A. Rose,[11] among the latest to make use of carbon dioxide, has treated satisfactorily dysentery, whooping cough, and prostatitis by introducing a stream of the gas into the rectum, according to the Bourgeon method. At Nauheim, as a part of the Schott treatment, it is now regarded as a valuable aid in treating chronic heart troubles. Dr. Carmac,[12] who recently visited Nauheim, reports that Schott's theory was that the gas, from its subtle qualities, easily penetrated the skin, stimulating breathing and expanding the lungs. As for myself, I have never experienced such a feeling of freshness and exhilaration as after taking what is called a "champagne" bath at Franzensbad, in Bohemia.

I. Burney Yeo,[13] in a recent lecture at King's College Hospital, calls attention to Dr. Bencke, of Marburg, who, as the predecessor of Schott, first taught the value of carbonic acid baths in chronic heart troubles. He has also experimented with them himself, and found them of value in regulating compensatory diseases of the heart.

The Use of Carbon Dioxide Internally.

This brings us to the use of carbon dioxide internally. About twenty-five years ago I called the attention of the medical profession to its use in dyspepsia, and shortly afterward Dr. T. D. Crothers gave his experience in swallowing the gas through a glass tube, which he introduced into the stratum of gas overlying the fermenting mass in the vats of a brewery; being led to this by a patient who swallowed the gas through a rubber hose. Still earlier, in 1860, I am informed, Dr. Ignatius Langer, of Davenport, Iowa (formerly of Buda-Pest), a very ingenious man, treated with success several patients suffering from stomach troubles by forcing the gas into the stomach. How this was done I am unable to learn. In 1889 I patented a bottle stopper for use in retaining carbonic acid in mineral waters and champagnes, having experienced great trouble in retaining the gas when treating the vomiting of pregnancy with carbonic acid. This stopper is now in general use in Europe and America, and of sufficient value for many hospitals to employ it when carbonated waters are used in cases accompanied by nausea and vomiting.

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[6] Ludwig's *Beitrag zur Phys.*

[7] *Giorn. di clin. terap.*, 1888.

[8] *Bull. de la Soc de méd. prat. de Paris*, 1890.

[9] *Deut. Med.-Ztg.*, 1891–'92.

[10] *Berlin klin. Woch.*, 1887.

[11] *New York Medical Journal*, September, 1895.

[12] *Johns Hopkins Hospital Bulletin*, May, 1897.

[13] *International Clinics*, July, 1896.

I now come to my personal use of carbonic acid gas. During the past twenty-five years I have used it assiduously in nausea and vomiting from whatever cause, but I have used it especially in the treatment of various disorders of digestion. Until within the past six months I have depended upon the carbonic acid waters, particularly those highly charged, such Apollinaris, Gieshübler, and Delatour soda, using the bottle stopper mentioned above. Recently, however, through the courtesy of Bishop & Babcock, of this city and Cleveland, Ohio, manufacturers of liquid carbonic acid gas, I have had placed in my office a steel cylinder charged with liquid carbon dioxide under a pressure of thirty-eight atmospheres. A gauge and regulator enable me to regulate the pressure so that I can administer the gas with perfect ease. I usually set the regulator at a pressure of from six to eight pounds, then I connect a stopcock with three feet of rubber tubing, terminating in a glass mouthpiece. I direct the patient—who comes to my office with a fasting stomach—to place the glass tube in his mouth, slightly depressing his tongue at the base. He is then directed to draw in his breath and hold it. I turn the stopcock and allow the gas to flow into the œsophagus and stomach. The pointer of the gauge falls back to zero, and I shut off the pressure, the patient withdrawing the tube and swallowing. No trouble from choking is experienced.

Effects of the Treatment.

I repeat this operation every minute for four or five minutes, and then allow a rest. The sensation is rather pleasant than otherwise. Most patients express satisfaction. There is a feeling of warmth in the stomach, with a sense of exhilaration, while no unpleasant distension is noticed, although the stomach may be so fully dilated as to allow one to define its outlines. Each *seance* lasts from fifteen to twenty minutes, and I have yet to find a patient who has experienced the slightest discomfort from its use. Several have told me that they have fancied they slept better when taking the gas in the evening. It can also be easily used for the purpose of dilating the stomach for diagnostic purposes, by connecting the rubber spray tube of Einhorn with the glass mouthpiece. This is certainly preferable to the old method of Frerichs, of using an acid and soda powder alternately, which is not only crude, but oftentimes distressing; or that other disgusting procedure of blowing through the tube and inflating the stomach with one's breath. Care should be taken in using the tube to allow the pointer to return to the five-pound pressure, and then wait a moment before permitting more gas to flow into the stomach, otherwise a slight dizziness will result. Upon withdrawing the tube a large portion of gas will be belched up, part will be absorbed, and part will pass the pylorus into the intestines. The only restriction I would place upon the use of carbonic acid gas is that it should not be used in organic heart troubles or any organic disease of arteries or brain.

The action of carbon dioxide upon the gastric mucosa would appear to be stimulating, anæsthetic, and germicidal. It stimulates the peptic and pyloric glands, and is especially useful in the jaded, overworked stomach of the lifelong gourmand, or the seared, shriveled, hardened mucous membrane we find in alcoholic stomachs. My impression is it even goes beyond this, and through its ready absorption stimulates the muscularis mucosæ, and by its action upon the pneumogastric and sympathetic increases secretion. I find it especially useful in achylia gastrica, chronic catarrh—the stomach being first washed out—in hyperchlorhydria, where the hyperacidity is due to the formation of organic and fatty acids, and in the stomachs of habitual drunkards after a debauch. I do not suggest its use as a "cure-all," but as an adjuvant in the treatment of stomach troubles, which will, in a measure at least, take the place of a multitude of the ferments, tonics, and digesters we have been accustomed to deluge the stomach with.

The gas is cleanly, odorless, and not unpleasant to take. Its use has a great advantage over that of carbonated waters in that the water itself is entirely unnecessary, and may be impure. It is also very cold usually, and may chill the stomach.

I append a few cases:

M. A., merchant; forty-two years of age; usually in good health, but has periodical sprees. Has been indulging for the past two weeks freely in the use of liquor. Has slight muscular tremor; no hallucinations. Is very nervous. Vomits constantly. Vomit contains bile, occasional streaks of blood and mucus. Very sensitive over the pit of the stomach. I washed out the stomach thoroughly. Instructed him to use no food for twenty-four hours. Began the use of gas—three *seances*, twenty minutes each, the first day. No more vomiting. Second day allowed him white of egg shaken up with Vichy water, and a cupful of hot milk. After three days' use of gas, returned to his business and ate his usual food. This case is of interest from the fact that I had formerly treated the patient and failed to relieve him within a week or more.

Case of Hyperchlorhydria.—Mrs. G., large, fleshy woman, thirty-six years of age. Has had uterine and rectal troubles; complains of pain in the stomach an hour or two after eating. Is a very large eater of highly seasoned food. Often at night has gushes of hot and sometimes bitter fluid come up in the throat, so acid it "sets her teeth on edge." Bowels irregular, usually loose. Condition: Tongue clean, belches considerable gas, which, she says, is unpleasant smelling. Is well nourished, has rosy cheeks, and is extremely indolent. Total acidity after test breakfast, 92. HCl=70. Erythrodextrin present. Treatment: Gas daily for two weeks; no medicine, except for the first week a solution of impure carbonate of potassium (pearlash) for use to relieve distress of acidity. Is entirely relieved, except for the occasional belching of gas, without odor, which is evidently neurotic.

Case of Achylia Gastrica.—Mr. K., fifty years of age, a merchant, sent to me from another city. Is of spare build, rather swarthy; very little adipose tissue. Skin dry, tongue always coated. Drinks very little fluid of any kind. Twelve years ago drank freely of ice water upon a hot day. The next day he suffered from pain in the stomach and vomiting. Saw blood in the vomit. He has never been well since. Has had no vomiting for past five years. Examination of the stomach contents after a test breakfast was simply negative. Lactic acid, 0; HCl=0. Reaction alkaline. A disc of albumin unchanged. Has no pain; has lost twenty pounds in the past ten years. Has an uneasy feeling in the stomach after a full meal, but rarely eats much. Absorption by Penzoldt's test very slow. Three-quarters of an hour elaspse after eating before slight reaction is noticed. Is extremely nervous and easily fatigued. The case appeared at first to be malignant, but further examination convinced me it was what Einhorn would call achylia gastrica, or Bouveret "*anachlorhydrie nerveuse.*"

The treatment in this case was simply with the gas, lasting for one month. Mr. K. gained four pounds in weight, slept better, and felt as though he had a stomach and not a "dead thing," as he expressed it. This case was most interesting, but I have been unable to follow it up. Digestion was apparently performed entirely in the intestinal tract, the stomach serving merely as a receptacle for food.

ALBUMINURIA IN DYSPEPTICS.

Dr. Robin (*Journal d'Accouchements,* August 22, 1897) says that today every one admits the existence of functional albuminuria; that is to say, albuminuria existing without accompanying lesions. With functional albuminuria it is necessary to include albuminurias of hepatic origin, of nervous origin, of alimentary and dyspeptic origin; it is of the latter variety that Dr. Robin writes. Albuminuria which manifests itself in the course of dyspepsia presents peculiar characteristics which permit its diagnosis not only from Bright's disease but also from other functional albuminurias. The patients in whom this variety of albuminuria is encountered are affected with gastric hyperæsthesia, variable distension of the stomach, increase in the volume of the liver, constipation, and fæcal accumulation in the bowel. They complain of a sensation of weakness and fatigue; they are thin and have vertigo, but never present œdema. If we examine their urine we find sometimes an irregular albuminuria and sometimes a continuous and permanent albuminuria. This undergoes considerable variation according to the diet of the patient. The albumin is composed of serum without globulin. As to the urine, it never contains tubular casts, but a certain quantity of indican and crystals of oxalate of calcium are found. The state of nutrition and the organic and respiratory changes will furnish other signs which will aid in differentiating dyspeptic albuminuria from other varieties. In those affected with this form of albuminuria one finds an increase of the coefficient of oxidation of nitrogen and an exaggeration of organic demineralization and a diminution of pulmonary interchange. Dyspeptic albuminuria has been attributed by most authors to a reabsorption of toxins evolved in the digestive tract. The author does not agree with this idea, but, on the contrary, thinks that this affection is engendered by the passage into the urine of nutrient albumin which has not undergone modifications in the stomach which fit it for assimilation, and thus it acts in a manner as a foreign substance. Alimentary albuminuria can be cured when it is properly treated in the beginning; that is, when it exists only in an intermittent form. When it becomes continuous it is cured only in from thirty to thirty-five per cent. of instances. The treatment is extremely simple and ought to be based, during the first stage at least, on the state of the digestive tract. Diet forms the prime element of treament and varies with each case; if there is less albumin with animal diet than with vegetable, animal diet should be prescribed, and vice versa. The diet should be mixed if it is found that there is less albumin under such conditions. It is almost useless to call attention to the fact that it is nearly always necessary to have recourse to a milk diet. This should be suspended if the patient begins to grow thin.

THE INDICATIONS AND CONTRAINDICATIONS FOR BICYCLE-RIDING BY WOMEN.

Fauquez's conclusions in the *Journal des connaissances medicales* for August 26 may be summed up as follows (*Gynecologie*, December 15): Bicycle-riding may be recommended in cases in which there is absolute integrity of the genital organs, for anæmic and chloro-anæmic persons, for dyspeptics, for neurasthenics, for sterile and obese persons, for young girls in whom menstruation is not normally established, and for women who have suffered from troubles dependent upon the menopause.

In cases of diseases of the uterus or of the ovary this exercise may be advised as follows: 1. In uterine congestion. 2. In amenorrhœa or suppression of menstruation connected with an arrest of development of the ovaries and of the uterus, with anæmia, chloro-anæmia, digestive troubles, neurasthenia, and chronic affections; with troubles resulting from physical or mental shock, cold, etc. 3. In dysmenorrhœa connected with nervous troubles. 4. In congestive dysmenorrhœa due to any cause capable of provoking congestion in the uterus and the ovary, such as physical or mental shock. 5. In deviation of the menses or supplementary menstruation. 6. In fibrous tumors when the hæmorrhagic stage has passed.

Bicycle-riding may be permitted in cases of mechanical dysmenorrhœa due to an obstruction to the discharge of blood, either congenital or acquired, and in membranous dysmenorrhœa; in cases in which the uterus becomes displaced; in cases of chronic metritis connected with the arrest of involution of the uterus after confinement or abortion, if it is not painful and recovery has begun. In this case, however, the exercise must be taken in moderation; in cases of leucorrhœa in anæmic and chloro-anæmic persons, and in cases in which the general condition is weak.

Bicycle-riding must be absolutely prescribed as follows: 1. In amenorrhœa connected with pulmonary phthisis, cancerous affections, diabetes, organic diseases of the heart, and diseases of the kidneys, such as albuminuria. 2. In cases of metrorrhagia or excessive menstruation. 3. In cases of inflammation of the uterus and its annexa, acute metritis, chronic painful metritis, hæmorrhagic endometritis, purulent endometritis, leucorrhœa connected with the inflammatory condition of the intra-uterine mucous membrane, inflammation of the annexa, salpingitis, oophoritis, salpingo-oophoritis, perimetritis, pelvic cellulitis and pelvic abscesses. 4. In cases of pelvic hæmatocele and of fibrous tumors during the hæmorrhagic stage. 5. In cases of inflammation of the vulva or vagina before complete recovery.

SILVER NITRATE IN THE TREATMENT OF TYPHOID FEVER.

In the *Normandie Medicale* for January 15 M. Arnaudet states that for several years he has systematically employed silver nitrate in typhoid fever as an intestinal antiseptic, and he considers the results very encouraging. During the past twelve months he has employed it in thirty-nine cases with only three deaths. Aside from the complications noted in these three cases, the author scarcely observed any but an abscess of the ear in a child five years old and serious bronchial symptoms in a young man. In fact, there were very few complications either early or remote. Ordinarily, and in spite of the grave aspect in the beginning, the progress of the fever was regular and simplified.

One of the first and most striking effects of the salt, says M. Arnaudet, was the suppression of the diarrhœa, and consequently there was little or no distension.

The disappearance of these two symptoms is, the author thinks, very important, for it indicates a better condition of the intestine; it indicates also that the infection has been reduced to a minimum and that the complications involving the peritonæum, the lungs, or the brain are less to be feared, as well as the high temperatures which endanger the life of the patient.

M. Arnaudet states that he has rarely observed sordes of the mouth or dryness of the nostrils; on the contrary, the nasal fossæ and the throat remained free and the tongue moist.

The temperature, after having reached or exceeded 104° F. before this treatment was begun, fell to 102.1° and then to 100.2°.

Generally, the duration of the disease did not exceed three weeks; four times it ran its course in from five to six weeks, twice in alcoholic subjects and twice after relapses. In one case the defervescence was complete before the fifteenth day.

Regarding convalescence, in the majority of cases it was very decided, and the return to health was almost without transition, especially in those who had been able to take a milk diet.

From these facts the author formulates the following clinical impressions: 1. In the average cases recovery was obtained with a remarkable facility from the use of the silver nitrate. 2. In the majority of the grave cases the disease was modified and simplified and reduced to the average type, and recovery obtained. 3. In the very grave cases, even with hæmophilia, the patients were more likely to recover by this method than by any other in the author's knowledge.

The mode of treatment is as follows: In the beginning a saline purgative is administered, and immediately afterward the silver nitrate. From two to three grains are given during the twenty-four hours to adults, in pills containing three-twentieths of a grain, one or two of which are to be given every two hours. As these pills decompose rather quickly, only a quantity sufficient for two or three days should be prescribed at a time.

Even during convalescence and until recovery is complete, the author gives first six, then three pills a day. In addition to this treatment, all the patients took fifteen grains of quinine sulphate until the temperature fell, which, according to the author, was a useful but insufficient measure, as the results he obtained with the systematic employment of silver nitrate proved. Coffee and milk in abundance were given. M. Arnaudet considers the silver nitrate a very inoffensive antiseptic, and states that to its antimicrobian properties may be added another, and perhaps very important one, particularly in typhoid fever, that is, the elective action that it exercises on the lower part of the small intestine, which is the principal seat of the lesions, and also on the large intestine.

M. Arnaudet states that this drug has given him good results in many other affections besides typhoid fever, notably in the majority of the diseases of the gastro-intestinal tract and its annexa.

THE TREATMENT OF EPIDEMIC INFLUENZA.*

Dr. ALADAR BEKESS.

During the winter of 1889-1890, when the influenza epidemic raged in Europe, many physicians thought they had encountered a new disease, as influenza had almost been forgotten, for the last visitation of an epidemic dated back some 60 years (1830 to 1833).

Influenza is an acute infectious disease, which remains latent in unknown regions for many years, only to make its appearance epidemically, yes, even at times endemically, throughout a country or a whole continent. The evidences of these epidemics can be traced back to the twelfth century (A. Hirsch). They do not disappear as quickly as they come, and only after numerous smaller or larger outbursts do they pass away entirely. Even now we hear of characteristic clinically observed cases.

Climate and season seem to bear but little weight on the spread of this disease, although it has been noticed that the epidemics seldom occur in summer. As soon as an epidemic makes its appearance, the larger part of the population without regard to sex, age or social standing contract the disease; the healthy and sick, the strong and weak, all are likewise attacked.

The treatment is mostly symptomatic. I give in the beginning, as in all infectious diseases, a laxative, preferably calomel, in doses of 2 to 5 grains for adults (one-tenth the amount for children). The calomel is divided into three powders, given at intervals of one hour. As long as the fever lasts, rest and a fever diet are indicated. Formerly I employed internally and given 3 to 4 times daily: Quinine 3 grs., antifebrin 4 grs., antipyrin 10-15 grs., sodium salicylate 10-15 grs.

Since 1890, however, I use almost exclusively salipyrin not only in influenza but also in ordinary catarrhal affections, rheumatism and neuralgia. I prescribe as an evening dose 15 grs. (seldom 20 to 30 grs.), mornings generally one-half that amount, although at times I do give 10 to 15 grs. For children one-tenth to one-half the above-mentioned doses, according to age. I never noticed any unpleasant after-effects from its use, and I was never compelled to resort to larger doses than those I have already mentioned. With this remedy I have obtained, without a doubt, the best results, which now and then were almost phenomenal in character. I noticed, as has also v. Mosengeil, that salipyrin must be continued for some time in order to achieve a good result. I prescribe 10 grs.

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* Translated from *Wiener Med. Presse.*

at night for 3 to 5 days after the fever has disappeared. Even after the fever has fallen to the normal the patient should be confined to his room for a number of days. The eventual complications are to be treated by the usual accepted methods of therapeutics.

INSTRUCTION IN THE ART OF PRESCRIBING.

The art of prescribing is one which bids fair to pass from us under the pressure of brilliant feats of operative surgery, and the startlingly new biology, serum and organo-therapy. What with studying the X-rays, experimenting with organic extracts, and carrying out micromorphologic observations, the medical student's time is so thoroughly occupied that something must be sacrificed, and judging from a recent article on prescribing in a prominent German medical journal, it would seem that in Germany, as well as in America, there is a marked tendency to neglect the important art of prescribing.

Professors Romberg and Schlegtendal have lately called attention to the neglect of this branch of instruction in medical courses in Germany, and in a recent contribution to the subject, Professor Binz (*Berlin Klin. Woch*, 1897, 48) has recorded a large number of accidents which were due to errors in prescription writing.

Some of these errors, it is true, were not errors of ignorance, but originated in careless writing or faulty abbreviations or other details. Professor Binz holds that the remedy lies with the clinical professors, who should see to it that the clinical student writes out explicitly each prescription ordered without resort to memorandum books or other prompting. In other words, Professor Binz holds that in the clinic the conditions should approximate as closely as possible those which would exist in actual practice, in prescription writing as well as diagnosis.

In the United States as well as in Germany there is much neglect of this important branch of the physician's education. In order to effect a slight economy in the work of hospital apothecaries, it is almost a universal custom to have a series of stock prescriptions ready, which are ordered either by numbers or letters. It is true that the hospital formulary will tell the embryo practitioner what he is ordering when he writes for eight ounces of No. 15, and the students when ordering these prescriptions know in a general way what the constituents are, but such ordering does not give any practice in prescription writing, and moreover tends to establish a habit on the part of the young physician of depending upon routine treatment, a habit which is most prejudicial to his best and wisest development as a physician.

It is to be hoped that the attention being paid to this in Germany will find an echo in our American medical schools and the hospitals attached to them. If the hospital authorities feel that they cannot afford the time required for the apothecary to put up individual prescriptions we think an effort should be made to follow the plan which has obtained of late in Atlanta, where the dispensing department of the medical college hospital has been placed in charge of the college of pharmacy, and details from the senior class are furnished to do the dispensing under the supervision, of course, of the apothecary of the hospital, who is a college instructor.

By a slight effort the schools of medicine and pharmacy might cooperate in this way to their very great mutual advantage. The pharmacy students would be given opportunities for a wide range of experience in prescription work under competent supervision, and the medical students would be furnished the opportunity to learn by practice the routine which they will necessarily have to follow when once they have left the hospital service.—Editorial in *American Druggist.*

THE CITY BOARD OF HEALTH AND THE BRUSH BILL.

We have not seen the text of the bill now before the Legislature of the State of New York, commonly spoken of as the Brush bill, which seeks to place some limitations upon the power now exercised by the Board of Health of the City of New York and the work done by the Board. We presume it is correct to say, however, in a general way, that the main objects of the bill are to restrain the Board from requiring reports of cases of tuberculous disease and to restrict—some accounts say altogether abolish—its production of vaccine and antitoxines.

As concerns the matter of tuberculous disease, there is perhaps much to be said in favor of the course taken by the Board, and great weight no doubt is to be attached to a recently published declaration by the medical officers of the leading life insurance companies of the city to the effect that the Board's efforts to diminish the ravages of consumption have already borne substantial fruit. However, there is assuredly much to be said on the other side. On the whole, we do not think the question has yet been sufficiently discussed to make a fair-minded person very warm in support of the tuberculosis element in the Brush bill or in opposition to it. It seems to us that it would be better for the present to refrain from legislation on that point.

As to the Board's commercial products, if it is really true that the bill aims to prevent the Board from making them at all, we may say frankly that we look upon such a provision as injudicious and injurious. We would not abate in any degree the Board's authority to produce vaccine, diphtheria antitoxine, and other antitoxines for its own use, that is, for use among the poor. We believe firmly, however, that the Board ought to be prevented from selling and giving away those products indiscriminately. It will not do to gloss over this infraction of the country's sense of justice by saying that the Board produces articles that are purer and more potent than can be obtained from other sources. We do not believe it to be a fact, and, if we knew it to be a fact, we should think it of far lesser importance than the harm done by throttling private enterprise with the aid of public money. It is quite proper, nevertheless, that the Board should be charged with authority to examine the products that are put on the New York market by others, and to suppress their sale whenever they are found to be defective. The most unworthy argument we have heard against interfering with the Board's drug business is the statement that it has no competitors living in the State. Perhaps it would have them if their existence had not been rendered almost impossible by the Board's action. But, be that as it may, are the people of the State of New York content to rest under the imputation that they care not how many persons belonging outside of their own borders are injured by their action? We hope and believe they are not. We believe that if the people fail to forbid the further prosecution of the drug business by the Board, it will be because the true aspect of the matter has not been presented to them.—*Editorial in New York Medical Journal.*

COLD IN THE ETIOLOGY OF DISEASE.

Chelmonski, in the *Deutsches Archiv fur Klinische Medicin*, 1897, page 140, reaches the following conclusions (*Gazette hebdomadaire de medecine et dechirurgie*, December 19):

1. Taking cold, in the ordinary acceptation of the term, does not exist. 2. The ætioligical rôle of cold is very subordinate; in inflammatory affections it does not figure, except as a predisposing cause. 3. Chilling is dependent upon the action of thermic agents that are ordinarily difficult to avoid. 4. The mode of reaction of the skin against the thermic excitation produced indicates whether the individual may, in certain conditions, contract a cold. 5. The degree of tendency to colds is not a constant property of the individual. 6. Old persons, those attacked with intermittent fever, and individuals suffering from renal affections seem to be more subject to taking cold. 7. There does not exist any relation between the tendency to colds, on the one hand, and the condition of nutrition and the thermic sensibility, on the other. 8. Individuals may be protected from diseases caused by cold developing, with appropriate means, the power of reaction against the thermic influences.

THE TREATMENT OF CARBOLIC ACID POISONING WITH VINEGAR.

The following case is related by Dr. A. Paget Steavenson in the *Indian Medical Record* for December 1: The patient was a girl, eighteen years old, who said she was subject to "fits." On August 3, 1896, she was taken with one, and when the physician saw her she was in a semiconscious condition and frothing at the mouth. She had vomited slightly, and the vomited matter had a sour smell, but no carbolic-acid odor was observed. She regained consciousness, and a bromide draught was administered. She gradually became worse and another physician was called to see her. He diagnosticated the case as one of carbolic-acid poisoning, and, as he could not rouse her or get her to swallow anything, he ordered her to be taken to the hospital.

When she was admitted she was quite unconscious, cyanosed and nearly pulseless. The lips and the tongue were discolored, and the breath had a slight carbolic-acid odor. The author gave her a hypodermic injection of strychnine (one-eightieth of a grain). He then passed a soft stomach-tube, washed the stomach out with equal parts of vinegar and water, and followed this with about six pints of warm water. He then gave her five ounces of milk and an ounce of brandy. She was then put into bed and kept warm. She gradually regained consciousness, and a few hours afterward she was able to speak. She was fed on Benger's food, milk and soda water for the next three days. She did not vomit or complain of any pain. Carboluria was present for two days.

The author states that he was led to use vinegar in this case by Professor Carleton's suggestion in the *Practitioner* of August, 1896. He cannot state definitely how much carbolic acid was taken. The long period of unconsciousness, the rapid recovery, and the absence of discomforting after-effects speak well, he thinks, for the vinegar, and he is of the opinion that it should be given a fair trial, especially as it is a remedy easily obtained.

DANGERS FROM INTERMARRIAGES.

Dr. Deneffe (*Journal d'Accouchements*) says that the bad results of consanguinous marriages have been observed since ancient times. In breeding animals the principles of consanguinity have enabled us to emphasize characteristics that would otherwise be lost; it has permitted the creation of certain races, but this consanguinity has no value unless it is governed by those competent to choose their subjects. Without this selection consanguinity in animals gives as bad results as in man. With animals as with men it emphasizes the defects and vices. The selection so easy with animals is impossible with man. In our civilization, in these times of alcoholism and neuroses, there are not many families without defects, and heredity also complicates consanguinity. Experience shows us that consanguinous subjects, who seem exempt from all defects, reproduce in their offspring the defects of distant ancestors. It is difficult to get a thorough knowledge of the individuals themselves, and impossible to know much of their ancestors. There are villages in which consanguinous marriages are frequent, and where the race is nevertheless fine and vigorous. Dr. Deneffe gives many absolutely contradictory facts. He refers to the Protestant communities living during the sixteenth century in the midst of Catholics, and forced by this circumstance to tolerate consanguinous marriages. These marriages gave worse results than crossed marriages. The author considers that consanguinous marriages are always dangerous.

THE DISTRIBUTION OF THE MEDICAL PROFESSION IN ENGLAND.

The issue for 1898 of the *Medical Directory* shows that there has been an increase in the number of registered practitioners over the number for last year, but the increase of 1898 over 1897—namely, 619—is less than the increase of 1897 over 1896, which was 958. The whole number of practitioners spread throughout the British Empire for 1898 is 34,903, as against 34,284 in 1897, and they are distributed as follows, the numbers given in brackets being those of 1897 for comparison. Number of practitioners in the London list, 6,081 (5,992); in England, excluding London, 15,400 (15,081); in Wales, 1,081 (1,062); in Scotland, 3,412 (3,369); in Ireland, 2,615 (2,598); practitioners resident abroad, 3,770 (3,652); naval, military and Indian medical services, excluding those which appear also in other lists, 2,521 (2,510); too late list, 23 (20). During last year 599 members of the profession died, as against 497 in 1896.

THE TREATMENT OF OBESITY.

A paper "On the Treatment of Obesity," in which he embodies his experience in the management of this common affliction, was contributed recently (October 30, 1897) to the *Bulletin General de Therapeutique*, by Prof. Albert Robin.

In answer to the question, "Who are obese?" he lays down an abstract rule applicable to adult males—women, with their thinner, lighter skeletons, should weigh somewhat less. Every person has a normal weight in kilogrammes represented by the number of centimeters which exceed the meter in his height. Thus a man of one meter and 700 centimeters (five feet six and a half inches) in height, ought to weigh 70 kilogrammes or 140 pounds. A woman of the same height should weigh 125 or 130 pounds. There is excess whenever the weight much exceeds this approximative norm.

With regard to the pathogeny of obesity, there seems to be general agreement (1) that it is hereditary and diathetic; (2) that as a malady it essentially consists in retardation of nutrition, that is, of the oxidation-processes of the economy whereby ternary or quarternary compounds are rendered fit for elimination. But Le Gendre has shown that there is such a thing as obesity due to excess of assimilation as well as to want of disassimilation; and the importance of this subdivision is emphasized by Robin, who points out that patients coming under this head require special treatment. For instance, the dry-diet treatment can only do good in cases where there is exaggerated nutrition. This method, advised by Œrtel and Schweninger, consists in withholding drinks as far as possible, allowing the patient no liquid with meals, and but a sparing amount two or three hours after eating. In patients obese by fault of dissimilation drinks should be permitted rather than withheld, as promoting the oxidation of the economy.

In the treatment of obesity, the dietetic regimen plays the principal part, the medical treatment being only accessory. The regimen which Robin advocates is based on Voit's experiment, in which it was found that dogs fed exclusively on lean meat became lean, with augmentation of urea and extractives in the urine; fed on a mixed diet of starches, fats and flesh, they rapidly increased in weight and the amount of urea in the urine diminished.

Robin's diet tables prescribe five meals during the day. For breakfast, a raw egg at 8 o'clock, 20 grammes (two-thirds of an ounce) of lean meat or lean fish, the whole eaten cold and dry—this condition is emphasized, that the patient must eat his meat cold; cold meat may be consumed in greater quantity than hot meat without causing increase of weight; ten grammes (one-third of an ounce) of bread; one cup of hot tea without sugar. At ten o'clock, two raw eggs, five grammes (one-sixth of an ounce) of bread, 150 centimeters (five ounces) of wine and water, or tea without sugar are allowed. At noon, cold lean meat ad libitum, but no bread; a little water-cress or salad salted and flavored with lemon juice; of raw fruits, 100 to 150 grammes (three to five ounces) for dessert, and for drink, may be taken, with this meal, one or two tumblerfuls of water, or water simply reddened with a little wine. One-quarter of an hour after dinner a cup of weak tea not sweetened, and at 4 P. M., a cup of weak tea not sweetened, and nothing else are allowed. At 7 P. M., the same repast may be taken as in the morning at 8 o'clock, and a little more lean fish or meat may be added, which the patient may eat warm; the whole quantity must not exceed 100 grammes (three and one-third ounces).

As will be seen, this regimen leaves the patient two good meals a day in which he may eat pretty freely, only azotized substances, however, and green vegetables being allowed. Bread is as far as possible suppressed, but a moderate amount of gluten bread may be permitted.

As for the general hygiene, exercise in the open air is insisted on; this may consist of a walk of half or three-quarters of an hour after each meal, that is, five times a day. It is difficult to get patients to comply with this requirement, for the corpulent have a horror of much walking. The time spent in this exercise, should be gradually increased from half an hour to three-quarters of an hour of brisk walking after each meal, and all the influence of the physician should be exerted to enforce this regulation. If the patient be a female, a carriage ride, with a walk in the country may be the utmost that can be exacted. In case the patient lives in the country and has a garden, a little exercise in the garden after meals with a hoe or other implement, or, at least, a promenade, must be enjoined.

Hydrotherapy followed by frictions, in a word, everything which stimulates the functions of the skin—vapor-baths, massage, etc.—may be enjoined.

Sleep should be regulated as well as diet. Sleep during the daytime should be absolutely interdicted. The patient should go to bed at 11 o'clock P. M. and rise at 6 A. M. during the summer, and at 7 A. M. during the winter—not more than seven hours of sleep for the adult and eight hours for the child.

Robin thinks it possible to obtain sufficiently good effects from regimen without having recourse to any kind of medicine. He would not recommend thyroidin; though this remedy has sometimes given good and rapid results, the indications for it are still uncertain and apply only to certain cases. Moreover, it is far from being always a safe therapeutical agent, as grave accidents have happened from its use. Iodide of potassium has doubtless been given with benefit, but the doses required to cause rapid emaciation are large, and the effects on the tissues and especially on the glands are frequently disastrous. Emaciation, Robin justly says, is a bad designation of the end to attain; the subject ought not to emaciate, he ought to cease to grow fat, and he should aim to transform his obesity into simple embonpoint; iodide of potassium, like other so-called "alteratives," produces a rapid emaciation with all its inconveniences.

The natural mineral waters have a great reputation in the treatment of obesity, but their effects last only with the season, as they are at best only a simple adjuvant of the hygienic regimen. The best of these are the waters of Marienbad in Austria, of Sautenay and of Brides in France.

The sodic-chloride waters give excellent results in obesity from nutritive failure, being excitant of the nutritive processes.

Robin presents several tables, from cases in practice, illustrative of the good effects of this regimen, and closes with the somewhat disheartening remark that, "In most obese persons the diminution of weight is always slow and never attains the normal; there is a natural tendency to corpulence and all that regimen can do is to bring about and maintain a tolerable situation."

In commenting on this paper, the *Boston Medical and Surgical Journal* says: "We do not see that much is added hereby to previous literature and previous experience on this subject. In the treatment of this condition it is eminently true that what is one man's medicine is another man's poison. We ring the changes on albuminoids, carbohydrates, fats, fluids, exercise, and as a result get Banting, Ebstein, Œrtel, Œrtel-Schweninger, Yeo, and Robin. The end of the circle brings us round again towards the starting-point. The very differences in the régimes show that some patients reach better results under one and others under another. The skill and service of the practitioner lie in the selection or modification of the method for the individual case, and in the enforcement of its application, and the latter is by no means the easier part of his task."

PNEUMONIA ATTRIBUTED TO MENSTRUATION.

Laurent (*Chronique Medicale*, December 15, 1897) does not entirely disbelieve in certain ideas, popular amongst women in different countries, relating to menstruation. In the sugar refineries in the north of France the female hands are actually kept out of the premises when the sugar is being boiled, and also when it is undergoing the process of cooling. The objection to women is that if one or more were menstruating the sugar would be blackened. A similar notion prevails in Cochin-China in respect to the preparation of opium. Another doctrine, also common to Europe and Asia, is that the hands of a menstruating woman break objects of strength and toughness. Especially is this notion entertained in relation to stringed instruments. A performer on the double-bass at a theater in Paris declared that if his wife touched one cord of the instrument during her "period" it snapped at once. Two young women, excellent violinists, informed Laurent that they never played when menstruating, as the snapping of cords interfered greatly with the performance. One of these ladies admitted that she was extremely nervous and irritable at the period. Several much more credible phenomena have been reported, and clearly come under the head of neuroses.

Young girls sometimes acquire an idea that their clothes stick to them at the period. Such a person gets nervous during the catamenia, and trying to pull off a tight glove fails, and then believes that it sticks to her. Since she thinks that the same must be the case with her clothes, she loses the power as well as the will to pull them off. Laurent observed this in two sisters. Their body linen did not stick to the skin through perspiration or any visible cause, but it could not be taken off during a "period" till a servant pushed her hand between it and the skin.

COMPARATIVE POSITION OF THE GENERAL PRACTITIONER HERE AND IN ENGLAND.

Competition, associated with other causes, has for some time past pressed very heavily upon medical men in this country. Their average income is smaller and their future chances are not nearly so bright as they were but a few years ago. The reduction in the earnings of doctors is not confined to the United States, but is a world-wide evil, says the *Medical Record*. These remarks apply to the rank and file of the medical profession only, and not to the specialists who in every land may be said to form a separate class. In Great Britain, indeed, the position of the general practitioner has become so precarious that an absolute dread as to the ultimate result is pervading its ranks, and remedies are being suggested and sought for on all sides. Thus from a contemplation of the state of affairs in the old world, the doctors here may extract some grains of comfort.

It is always consoling to the ordinary individual to know that there are others in a worse plight than himself. In the first place, the expense of a medical education in Great Britatin averages more than in America. To obtain a degree or qualification in any medical school in England, Scotland or Ireland, a course of study covering a period of at least five years is compulsory and entails an expenditure of a no less sum than $3,000. *The Lancet* and *British Medical Journal* put the cost at a much higher figure. When, after these years of work and anxiety and after spending this amount of money, the student succeeds in obtaining his license to practise, what are his prospects? If he possesses money, all well and good. At any rate he can make a fair start, but if he has no means, what then? At the outset he may be fortunate enough to earn an income of from $250 to $400 a year as an indoor assistant to a practitioner; as a ship's surgeon he may be paid as much as $40 a month; a parish appointment may afford him perhaps $250 yearly; or, lastly, if he will consent to pocket his pride and lose much of his self-respect, he may open in the poor suburbs of London or in the slums of one or other of the large towns what the inhabitants of these districts briefly term the doctor's shop, and there retail medicine and advice for twelve cents and pay a visit for twenty-four cents.

Again, take the case of a young man in Great Britain, who either through interest or the possession of capital is able to commence life as a general practitioner under more favorable auspices, and compare his chances with those of the beginner here. It is stated in the *British Medical Journal*, on well-informed authority, that the average income of a doctor in Great Britain does not exceed $1,000, so it may be taken for granted that the average yearly earnings of those starting practice is very considerably less than this sum. On equally authentic authority it is asserted that the average income of a medical man here after about five years' practice varies from $800 to $1,500, and that the income of a practitioner of twenty years' standing can be estimated at not less than $2,000.

But this is not all the advantage the doctors on this side possess. It is when we review the fees in detail that the great difference in the pecuniary position of medical men here and in that of their brother practitioners in England is most clearly appreciated.

Incomes in this country may be estimated at nearly double that on the other side, while fees average nearly four times as much. Reference has already been made to some of the fees in the poorer districts of the large towns in England. It may be added that in the agricultural parts of the country they are not much higher, besides being more difficult to collect. Here no self-respecting doctor will take a fee of under half a dollar for an office visit, or less than a dollar for an outside visit. For midwifery he will expect at least $15 (the average in Great Britain is about $5). In England a doctor has to do more than twice the amount of work in order to earn the same income. Finally there can be no doubt that the ordinary working member of the medical profession in this country is in a comparatively better position, in addition to having a brighter outlook, than one of the same class in England. Into the question of causes in both countries there is no need to enter.—*Medical Record.*

BACTERIOLOGICAL RESEARCHES ON ACUTE ARTICULAR RHEUMATISM.

In a recent article, Dr. P. Achalme (*Ann. de l'Inst. Pasteur,* November, 1897), reports the results of his researches on the bodies of two patients, one of whom died of cerebral rheumatism, the other from endocardial complications of acute rheumatism, and on six living patients, suffering from well-defined acute articular rheumatism.

The first post-mortem examination took place in 1890; the second is of recent date. In both cases Dr. Achalme discovered the same anærobic bacillus, in a state of pure culture and in great abundance, in the normal fluids of the organism, in the myocardium and on the diseased portions of the valves of the heart.

This microbe was also met with by the author and by Dr. Thiroloix in all the six living patients, in the blood withdrawn with all aseptic precautions from the ulnar vein. In four of the cases the bacillus was in a state of purity, in the other two it was associated with micrococci.

This special bacillus, being les sabundant in the living subject than in the dead body, can only be detected with equal parts of broth, to which is added, in either case, at least one cubic centimeter of blood. It is also necessary to produce a very complete vacuum in the tube and to keep it in the incubator at a temperature of 37° C.

The bacillus described by Dr. Achalme presents the appearance of a thick rod, being identical in this respect with the bacillus anthracis. Occasionally there is a slight spontaneous movement, but slow and in no way to be compared with that of the typhoid fever bacillus or of the bacterium coli. It stains readily with aniline dyes, and also by the Weigert and Gram methods. Two drops of a 10 per cent solution of sodium salicylate added to 10 cubic centimeters of the culture are sufficient to arrest the development of the micro-organism. This is a smaller quantity than that required for the majority of other pathogenic germs.

Biologically, Dr. Achalme's bacillus is chiefly remarkable in that its cultures give rise to the production of lactic acid and of an odorous mixture of acetic, butyric and propionic acids.

This microbe, inoculated into animals, determines characteristic lesions. The guineapig is particularly sensitive to its action, and is killed within from twenty to thirty-six hours. When inoculated into the thigh, in the same animal, it leads to the formation of a cavity, filled with a reddish serous fluid; the whole of the remaining subcutaneous cellular tissue of œdematous and infiltrated with a blood-stained, gelatinous fluid. The injection into the neighborhood of the thoracic wall frequently produces a pleural effusion mixed with blood.

In the rabbit, when the culture is injected under the skin of the ear, is gives rise to the formation of a good deal of œdema of the organ; the ear is cold, doughy, and when incised, a transparent serous fluid oozes out from it, which is found to contain the bacillus. When large quantities of the culture are injected into the vein of the ear, it occasionally gives rise to a kind of septicæmia, which proves fatal within from six to seven days, with intense congestion of the thoracic viscera. Lastly, the injection into the rabbit of serum taken from an inoculated guineapig, as in Dr. Thiroloix's experiments, gives rise to lesions of endopericarditis and of pleurisy, closely resembling the conditions observed in visceral rheumatism in the human subject.

The bacillus of acute rheumatism readily associates itself with other micro-organisms and appears to facilitate their penetration into the organism. The streptococcus is the usual agent of these secondary infections. Dr. Achalme once met with it, associated with the bacillus in question, in the blood of a patient who nevertheless made a good recovery.

HERNIA OF THE ABDOMINAL WOUND AFTER OPERATION.

Kouwer (*Centralbl. f. Gynak.*, No. 49, 1897) discussed this question at a recent meeting of the DutchObstetrical and Gynæcological Association. He insists on dividing the parietes accurately along the linea alba, carefully avoiding the sheaths of the recti, which, he says, must not be opened. The sheaths after the operation are united with a continuous silk suture; the integuments are closed separately in two layers. Kouwer's aim is to avoid constriction of muscular tissue, which would lead to its atrophy and consequent weakening of the scar. He also likes to insure the accurate union of each layer along the line of its sutured wound, and to avoid the adhesion of muscle to sheath or sheath to skin. If there be any objection to leaving sutures in the tissues, Kouwer recommends interrupted of figure-of-8 sutures, the deeper loop holding the aponeurosis together, the more superficial closing the skin wound. In order to restore tone to the abdominal muscles he recommends massage and faradisation. There was much discussion on the method recommended by Kouwer. Treub believed in a single set of interrupted sutures. He exhibited a preparation of the parts around an abdominal wound closed after this method. The patient recovered, but died later from return of the malignant disease for which the operation had been performed. Union of layer to layer was perfect, and there were no signs of atrophy of the muscle or other tissue from pressure.

ESSENCE OF NATURAL WINTERGREEN AND OF ARTIFICIAL WINTERGREEN IN THE TREATMENT OF RHEUMATISM.

M. VIDA writes that he has substituted since the month of July, 1896, the application of compresses soaked in essence of wintergreen for the ingestion of salicylate of soda in rheumatic patients whose digestive tract and nervous systems it was important to consider. "I noted," he says, "at the onset in a certain number of patients some cutaneous manifestations varying from simple temporary erythema to the reappearing papulous eczema. In all the rheumatic patients the essence of wintergreen was applied according to the process become classic of 50 to 100 drops poured upon a double fold of aseptic gauze and covered by an impermeable material applied for some hours either to the forearm or to the leg and renewed twice every twenty-four hours. Surprised at these cutaneous accidents which manifested themselves, especially in a series, and which could not be imputed to an exaggerated susceptibility of the integuments of these patients, I sought for their cause and arrived at the following conclusions. There exist now in commerce two essences of wintergreen indifferently utilized in the drug business, and differentiated only by their price, varying from the single to the double. The one, the natural essence of wintergreen, is of a reddish yellow color, having an oily odor, essentially extracted by distillation from the gaultheria procumbeus or palommier, and is a mixture of hydrocarburets not yet perfectly defined and of methylic salicylate in the proportion of nine-tenths. The other, the artificial essence of wintergreen, is colorless, with an acrid odor, empyreumatic, recalling the odor of coal smoke, is pure methylic salicylate, and is obtained synthetically. On simultaneously applying to the two forearms of a rheumatic patient according to the method already described some compresses, the one soaked with the natural essence and the other with the artificial essence, it may be easily noticed that no reaction is produced upon the section of the member in contact with the pure methylic salicylate. The part treatel with natural essence of wintergreen is, on the contrary, more or less red, painful, and covered sometimes with a rubeoliformic eruption. Methylic salicylate cannot have a different action according to the product employed. It is, then, necessary to conclude that the irritating action of natural essence of wintergreen is due to resins of an undetermined nature (gaultheriline, etc.) mixed with the salicylate. It is important, in order to avoid all irritating action appearing to counterbalance the excellent effects of this cutaneous medication to renounce the vague appellation of 'wintergreen,' which leaves to the preparer the choice of employing the natural or artificial essense, and often of mixing the two essences delivered by the producer, and to prescribe the pure methylic salicylate deprived of all irritating action and not leaving any doubt upon the product to be employed."

INFANTILE DIPHTHERIA AND PREVENTIVE INOCULATION.

Riether (*Wien. Klin. Woch.*, 1897, No. 28) replies to the numerous papers which have recently appeared on the immunity of sucklings to diphtheria by quoting a series of 31 cases occurring within two years in a foundling hospital with which he is connected; of these only 7 recovered. The disease is hence not frequent, but by no means so exceptionally rare as has been asserted.

It is practically almost always primarily nasal, the acid contents of the mouths of sucklings preventing, as Monti has shown, the growth of the Klebs-Lœffler bacillus. A case which was at first regarded as primary oral diphtheria was proved bacteriologically to be streptococcal stomatitis; the child got well. One of the other cases was exceptional in that the primary affection was of the unhealed umbilicus, the fauces being attacked secondarily. The disease almost invariably attacked weak and reduced children. It being found impossible to stamp the diphtheria out by room and house disinfection, it was decided to give all children a prophylactic inoculation of 100 units of Paltauf's antitoxin.

Of 1,450 children thus treated, although in other respects no further safeguard against diphtheria was used, only two contracted the disease. Each of these was extremely weakly, and in each the onset dated from seven weeks ofter the inoculation. In 1897 no case of diphtheria had developed in the hospital, the only ones under treatment having been brought in ill. There was evidence also that this prophylaxis was diminishing the spread of diphtheria outside the institution as well. The children varied in age from a few hours to 2 or 3 months; 240 died of various causes unconnected with the inoculation, and in no one of them was any affection of the kidneys detected. In two there were minute abscesses, the size of a pea, at the site of injection, and in a few a mild erythema developed at the same spot.

An urticarial eruption which also appeared in rare cases could not certainly be attributed to the antitoxin. The author thus considers himself justified in stating that antidiphtheria serum can be injected without danger beneath the skin of infants in the first days or weeks of life, and that 100 units serve as a protection against the disease for five or six weeks. It may be added that this is the largest series of prophylactic inoculations against diphtheria hitherto recorded.

THE TREATMENT OF HAEMORRHOIDS BY INJECTIONS.

The treatment of hæmorrhoids by the injection of carbolic acid and glycerine, mixed in various proportions into the substance of each pile by means of a hypodermic syringe was first used by American surgeons. S. G. Shaleeta, of the Kieff Jewish Hospital (in a reprint from the *South Russian Medical Gazette*, Nos. 18, 19, 20, 21, 22, 23 and 24, 1897), has modified this method by using pure liquid carbolic acid, injecting each pile with a Pravaz's syringe to a certain degree of fulness, and completing the operation in one sitting. Two, three or four syringefuls of the acid are injected, according to the number and size of the tumors. For external piles he uses a mixture of two parts of pure carbolic acid to one part of a 2 per cent. of cocaine. Even if four syringefuls of this mixture are injected the quantity of cocaine is not sufficient to cause dangerous symptoms. As a matter of experience only a few drops should be injected where we have to deal with external piles, the syringe being introduced through the mucous membrane, and not through the skin.

The history of 69 cases treated in this way is given, and the results in all cases were highly encouraging. When the piles shriveled up and separated the surface presented was similar to that produced by the operation for ligature of the clamp and cautery. The advantages which the author claims for this mode of treatment are: (1) Absence of marked pain during the injections; (2) no necessity for anæsthesia (this is a great advantage in old and feeble patients, and those exhausted by repeated hæmorrhages); (3) little risk of suppression of urine following this operation; (4) no loss of blood during the operation; (5) no necessity to keep the bowels quiet for three or four days after the operation, as is the case in other methods of operating.

THE COMMUNICABILITY OF LEPROSY.

At the close of the debates of the International Leprosy Conference, held last year in Berlin, the secretaries presented the following short report of the general conclusions of the conference:

As might be expected, a considerable portion of the discussion has related to the bacillus lepræ, which the conference accepts as the virus of leprosy, and which for upwards of 25 years has been known to the scientific world through the important discovery of Hansen and the able investigations of Neisser. The conditions under which the bacillus grows and develops are still unknown, as well as the way of its invasion into the human system; but from the discussions of the conference, it seems probable that an unaminity of opinion will soon prevail in reference to its modes of subsequent dissemination within the human body. Very interesting observations have been brought forward in connection with the elimination of the bacilli in large quantities by means of the skin and the nasal and buccal mucous membranes of lepers; it is desired that such observations be confirmed where opportunities occur. The question is of very great importance to those who are entrusted with the care of the public health, as leprosy is now acknowledged to be a contagious disease. Every leper is a danger to his surroundings, the danger varying with the nature and extent of his relations therewith, and also with the sanitary conditions under which he lives. Although among the lower classes, every leper is especially dangerous to his family and fellow workers, cases of leprosy frequently appear in the higher social circles.

The theory of heredity of leprosy is now further shown to have lost ground, in comparison with the at present generally accepted theory of its contagiousness. The treatment of leprosy has only had palliative results up to the present time. Serumtherapy has so far been unsuccessful. In view of the virtual incurability of leprosy and the serious and detrimental effects which its existence in a community causes, and considering the good results whch have followed the adoption of legal measures of isolation in Norway, the Leprosy Conference, as a logical issue of the theory that the disease is contagious, has adopted the following resolution proposed by Dr. Hansen and amended by Dr. Besnier:

1. In such countries, where leprosy forms foci or has a great extension, we have in isolation the best means of preventing the spread of the disease.

2. The system of obligatory notification, of observation and isolation is carried out in Norway, is recommended to all nations with local self-government and a sufficient number of physicians and health officers.

3. It should be left to the legal authorities after consultation with the medical authorities to take such measures as are applicable to the special social conditions of the districts.

The secretaries of the conference were: Drs. Phin. S. Abraham, London; E. Dubois Havenith, Bruxelles; Ed. Arning, Hamburg; J. J. Kinyoun, Washington; A. von Bergmann, Riga; G. Thibierge, Paris, and Edv. Ehlers, Copenhagen, general secretary.

DIFFICULTIES OF THE BACTERIOLOGICAL DIAGNOSIS OF DIPHTHERIA.

Spronck (*Sem. Med.*, September 20, 1897) summarizes the literature relating to the distinction between true and false diphtheria bacilli. He concludes that: (1) A macroscopic and microscopic examination of the colonies developed on serum are insufficient for a certain diagnosis. (2) Inoculation of an animal is indispensable in all cases of diphtheria, unless severe or during an epidemic. (3) De Martini's criterion that true diphtheria bacilli, whether virulent or so attenuated as to be harmless, will not grow in antidiphtheritic serum, has been proved to be wrong by C. Frænkel and the author. The latter has found that when the hypodermic injection of 2 c.cm. of a recent broth culture does not kill a guinea-pig weighing about 300 g., but causes a more or less marked local œdema, in the great majority of cases one has to do with the pseudo-diphtheria bacillus. To make certain, however, another guinea-pig must be injected with antidiphtheritic serum. Then if it be injected with 2 c.cm. of the broth culture, and no local œdema occurs, it is an attenuated true B. diphtheriæ: if local œdema is still produced, a pseudo-diphtheria bacillus. The truth of this test invented by Spronck has been confirmed by C. Frænkel. Such attenuated true B. diphtheriæ are common except during epidemics. (4) As regards the short variety of bacillus, it is possible that some may be true B. diphtheriæ. Still the author has never met with a single example of a slightly pathogenic short bacillus which turned out to be so under the antidiphtheria serum test. As short bacilli are of daily occurrence, that they should be diphtheritic must be therefore very rare. (5) Diphtheria is never produced by non-virulent bacilli, such as are commonly found in many mouths. These saphrophytes which may be long or short or of medium length, and resemble exactly the B. diphtheriæ morphologically, belong to several varieties of bacilli quite distinct from Lœffler's.

THERAPEUTIC NOTES.

Gaiethol.—De Buck (*Belg. Méd.*, 1897, No. 31) recounts the various attempts which have been made to find a non-irritant substitute for creosote in the treatment of pulmonary tuberculosis. The best hitherto obtained has been guaiacol, which is further valuable as an antipyretic and an analgesic. The author has investigated from all these points of view the utility of a new and closely allied product, to which the name of gaiethol has been given. This contains one atom of carbon more than guaiacol and has the formula $C_5H_4 \diagup \begin{matrix} OC_2H_5 \\ HO \end{matrix}$ being thus the monoethylic ether of pyrocatechin. It forms an oily liquid, insoluble in water or glycerin, but soluble in alcohol, ether and chloroform. It is precipitated by cold as colorless crystals, which melt at about 26° to 28° C.; it boils at 215° C. In six cases of pulmonary tuberculosis five, six or seven drops were given three times a day, in milk, or 4 g. with a little codeine as often in soup. No greater activity than that of creosote or guaiacol and their ethers was observed, and although the subjective symptoms were somewhat improved, the author does not consider that the drug will play any important part in antituberculous medication. The antipyretic properties were found to be well marked, but distinctly less than those of guaiacol. The analgesic power is the most conspicuous, and will probably be the principal future indication for the remedy. The author has had considerable success in cases of neuritis and neuralgia painted two or three times a day with 2 to 3 c.cm. of a mixture of equal parts of guaiacol and chloroform; this is followed by a bandage to prevent evaporation. Another useful form of application is an an ointment with six times its weight of vaseline. For hypodermic injection a 10 per cent. emulsion in glycerin or sterilized oil is recommended. The effect of this is immediate, and last three or four hours, while no necrotic or inflammatory sequelæ, such as may occur with guaiacol, has been observed. De Buck recounts a case of extremely painful tuberculous cystitis which was relieved by this emulsion after injections of silver nitrate and corrosive sublimate had failed. He further reports favorable results in the treatment of severe coxalgia by gaiethol, the properties of which thus seem to merit its further clinical employment.

Formol-albumin.—Benedicenti (*Arch. Ital. de Biol.*, Tome xxvii, Fasc. iii, 1897) states that while formalin in solution is not a more active bactericide than perchloride of mercury and other common disinfectants, it may cause sloughing of the skin and tissues, which renders its use in surgery very dangerous. Schleich tried to overcome this disadvantage by combining it with gelatine (Epitome, No. 423, vol. 1, 1896). When broken up into small fragments it is then sold as "glutol," and is preferred by Schleich to iodoform and other disinfecting powders as being more soluble and less toxic. Glutol has never had the popularity it deserves in practical surgery, chiefly perhaps on account of its appearance. The author, finding that this glutol is a true chemical compound of formaldehyde with gelatin, has experimented with combinations of formaldehyde with other proteins. Of all these formol-albumin is to be preferred. This is prepared by placing a known weight of Merck's dried albumin in a solution of formaldehyde of known strength. The albumin then absorbs an amount of formaldehyde, depending, up to a certain point, on the length of time it is left in contact with it. If the albumin thus treated is distilled in a current of steam, it breaks up again into formaldehyde and albumin and it is thus possible to obtain formol-albumin containing any required percentage of formaldehyde. After removing the albumin from the formalin and estimating the percentage of formaldehyde it contains, it is dried and powdered. A white powder is thus obtained with disinfecting properties proportional to the amount of formaldehyde in it. With this experiments were made on rabbits. Wounds either simple or inoculated with fæces, etc., healed excellently when powdered over with the formol-albumin, which kills also virulent cultures of B. anthracis, B. pyocyaneus, staphylococcus aureus, and streptococcus when mixed with or powdered over them. Benedicenti has also prepared formol-casein, which appears to act similarly to formol-albumin, and sero-formalin (from dried coagulated blood serum). The latter, from experiments, seems to be a dangerous substance for wound treatment, since some wounded rabbits treated with it developed toxic symptoms. Formol-albumin, however, is non-toxic, and, as it need contain but very small quantities of formaldehyde to develop its antiseptic property, has no disagreeable smell. It is also much more readily absorbed by the tissues, and is much cheaper than iodoform.

FOR CATARRH OF THE UPPER AIR PASSAGES.—Dr. Kafemann, of Faculty of Königsberg, recommends the following mixture as particularly efficacious in the treatment of laryngitis and bronchial catarrh:

Menthol	60 grs.
Eucalyptol	37 grs.
Terpineol	30 grs.
Pitch-pine Oil	15 grs.

A few drops of this liquid are poured into a bottle with convex bottom, and gently warmed over the flame of a spirit lamp. The bottle soon becomes filled with balsamic vapors, which the patient may inhale through the nose by means of a glass tube ending in a pear-shaped bulb.

OPERATION FOR THE PREVENTION OF CONCEPTION.—A woman who was still young had fallen into a state of grave anæmia after seven successive confinements, and Dr. Kehrer, professor of obstetrics and gynæcology at Heidelberg, performed the following operation, according to *La Semaine Medicale*, in order to prevent further pregnancies: By a median vaginal incision he penetrated the peritonæal cavity; then drawing the tubes into view he placed around them two catgut ligatures. This done, he performed vaginal hysteropexy immediately above the internal orifice of the uterus, introducing into the vesico-uterine cavity a strip of gauze and suturing the wound into the vagina so as to leave a small opening for the passage of the drainage. Apart from a little fever and slight suprapubic pain there were no sequelæ. This process of artificial sterilization possesses the advantages over castration of being a less serious operation, and of not bringing in its train the nervous troubles that double ovariotomy does. Dr. Kehrer thinks this could be done in certain grave affections (anæmia, pulmonary and cardiac lesions) which render pregnancy dangerous. He acknowledges that from a moral point of view the legitimacy of this operation could be questioned, and believes it ought not to be performed without the written consent of the parties concerned and a statement of the motives for such intervention.

THE RŒNTGEN RAYS IN THE TREATMENT OF INFANTILE ARTICULAR RHEUMATISM.—Dr. A. Sokoloff, instructor in pædiatrics at the Military Academy of Medicine of Saint-Petersburg (*Sem. Med.*), has subjected the diseased joints, in 4 cases of acute articular rheumatism in girls from 5 to 14 years of age, to the action of the X-rays; the result proved very favorable. The affected region was kept for from ten to twenty minutes at a distance of from 50 to 60 centimeters from the Crookes tube. The patients were all cured by from one to four sittings. The first application of the X-rays was always followed by a perceptible improvement and by diminution of the swelling and articular pain. In one case indeed the swollen joint was seen to decrease in size during the application itself, as further confirmed by actual measurements, taken immediately before and after the application of the treatment.

ALIMENTATION IN PNEUMONIA.—While drugs have their place in pneumonia, the excessive medication of former times no longer has the approval of modern authorities, and the attention diverted to the dietary forcibly illustrates the importance of this factor in the treatment. Besides milk, artificial meat-preparations are frequently called for, especially in the later stage of the disease when weakness and exhaustion manifest themselves. It is at this time that every effort should be made to promote the reparative process, to make good the waste of tissues and hasten convalesence. Somatose is peculiarly well adapted for this purpose. It consists of the nutritious elements of meat prepared in such manner that they require no digestion, but are at once absorbed and converted into the albuminous constituents of the blood, and at once take part in the repair of tissue. The stomach, therefore, is saved any exertion and no gastric or intestinal disturbance results, because the preparation is tasteless, odorless and perfectly unirritating. Clinical experience has shown that when administered in cases of pneumonia, Somatose is not only an easily assimilated and agreeable food, but an excellent tonic, increasing the strength of the heart, stimulating the appetite and promoting a rapid return to health.

MICHAEL ANGELO AND HIS PRESCRIPTIONS.—A curious discovery has been made in the Vatican Library, namely, that of a collection of prescriptions and directions for treating various diseases of the eye in the handwriting of Michael Angelo. The belief is that the great sculptor, who suffered from some eye trouble, obtaind the prescriptions from his medical friends, and then copied them out. The number of the documents in question seems to suggest that Michael Angelo made many applications for advice. Possibly he was not satisfied with the results of the treatment, a likely assumption enough in view of the benighted times in which he lived. He died in the year 1546, a period in which but little could have been known of eye diseases and their treatment. But however this may be it would be interesting, from the point of view of mediæval history, to learn of what the prescriptions consist. Perhaps permission might be obtained to translate them, their translation would probably reveal many things, and not the least the fact that Michael Angelo was a bold man in following the advice tendered him.

CATHETERIZATION OF THE FEMALE.—Dr. S. H. Britton, in *The Cincinnati Lancet-Clinic*, offers the following method of catheterization of the female with a soft catheter: Catch the catheter near the point or end that is to be introduced. Keep this end pointed upward (the woman being in horizontal posture on her back), and move it backward from the posterior side of the clitoris in a line corresponding with the line of articulation of the pubic bones, all the while pressing the point (quite strongly if parts are not too tender) against the mucous membrane of the vagina. If the meatus is missed, repeat, varying somewhat until the point of the catheter slips into the meatus. Then hold it there, and by some assistance from the other hand a soft catheter can easily be introduced without exposure of the woman.

CHELIDONIUM IN THE TREATMENT OF CANCER OF THE LARYNX.—Chelidonium majus, as is well-known, has been employed in the treatment of malignant tumors, but it has not, as a rule, yielded the favorable results obtained by Dr. Denisenko, the author of the new therapeutical method. A Russian navy surgeon, Dr. Bogdanoff-Beresovy, however (*Sem. Med.*), has tried this drug in two cases of laryngeal cancer and the results obtained proved very encouraging. These are the first cases of this kind treated with chelidonium.

Both patients were given daily from 75 to 150 centigrammes of the extract of the plant, the larynx being also painted with a mixture of equal parts of glycerin and the extract in question.

Under the influence of this treatment both the pain on deglutition and the difficulty of breathing disappeared, the neoplastic masses softened and became transformed into ulcers, which partly healed, the general condition of the patient also improving considerably.

Dr. Bogdanoff-Beresovy therefore recommends trying the extract of chelidonium in all cases of inoperable cancer of the larynx, as it may afford the sufferer a considerable degree of relief.

Infantile Enteric Fever Successfully Treated by Applications of Guaiacol.—An Italian practitioner, Dr. T. Rodini (*La Sem. Med.*), has had good results from the treatment of typhoid fever at the stage of settled temperature with epidermic applications of guaiacol after Sciolla's method. The patient was a little boy of three whose temperature was 40.5 C., with persistent drowsiness, marked weakness of the heart and hypostatic congestion of the lungs; cold-packing was tried, but had to be given up, as it gave rise to cardiac collapse.

A quarter of an hour after the first application of guaiacol, the temperature went down 1°; in the space of another quarter of an hour, it had fallen to very nearly normal and there was copious sweating. Four hours later, however, the thermometer again began to rise slowly.

On the following days, Dr. Rodini continued the applications of guaiacol regularly morning and evening without noticing any untoward effect from them, and with great benefit to the little patient. This treatment was persevered with up to the time of normal defervescence, which took place in the course of the third week.

Iodoformal as an Antiseptic.—In the treatment of infected wounds, furuncles, and gonorrhœal inflammations, this drug is said to have no unpleasant systemic effects, and to be an improvement over iodoform. It should be used in the form of a powder in gonorrhœal vaginitis, and for urethritis, in the form of a bougie, containing 20 per cent. of the drug.

It may also be employed as a salve, according to the following prescription:

℞	Iodoformal	gr. xlviii
	Bals. Peru. Lanolini anhyd.	gtt. xv
	Vaselini	q. s. ad. ℥ i

Sig. For external use.

Gonnorrhœa a General Disease.—At the last meeting of the French Association of Urology, held in Paris, October 21 to 23 (reported *La Med. Mod.*, VIII, No. 89, p. 711), Drs. Jullien and Sibert said that, considering the frequency, the multiplicity, and the severity of the complications of gonorrhœa, we are justified in calling that affection a general disease. In a girl of 17, who entered the hospital with a gonorrhœal vaginitis, there rapidly supervened a sinovitis, tendo-sinovitis, hydrops, myositis, nephritis, and meningitis, with constant delirium and a temperature of 104° F. In a second case there rapidly developed numerous arthropathies, followed by a cardiac lesion, which terminated in the destruction of the mitral valve. The patient became thin, weak, and short of breath, and permanently incapacitated for work. An examination of the blood showed the presence of the gonococcus.

BOOK REVIEWS

Outlines of Rural Hygiene.—For Physicians, Students, and Sanitarians. By Harvey B. Bashore, M.D., Inspector for the State Board of Health of Pennsylvania. With an Appendix on The Normal Distribution of Chlorine by Professor Herbert E. Smith, of Yale University. Illustrated with Twenty Engravings. 5½ x 8 inches. Pages vi-84. Extra Cloth, 75 cents net. The F. A. Davis Co., Philadelphia.

The country practitioner is expected to furnish all the sanitary knowledge required to guide the people under his care. That he falls somewhat short either in furnishing the necessary information on sanitation, or in his efforts to enforce his views is evidenced by the relatively higher proportion of typhoid cases which occur in the country as compared with the city population. This admirable little work of Dr. Bashore will undoubtedly prove of great practical value to the country practitioner along a line on which he is as a class undeniably in need of aid. The work is of an eminently practical character, giving detailed directions for the making of sanitary closets, etc. It should be in the hands of every "country doctor."

The Psychology of Suggestion.—A Research into the Subconscious Nature of Man and Society. By Boris Sidis, M.A., Ph.D., Associate in Psychology at the Pathological Institute of the New York State Hospital. With an Introduction by Professor William James, of Harvard University. D. Appleton & Co., New York, 1898.

The therapeutics of suggestion which are so ardently believed in by the followers of Charcot and so strenuously denied by Ernest Hart, have attracted much attention and the work of Dr. Sidis will be welcomed by all who having been attracted by the singular phenomena of suggestion, but at the same time repelled by the empiricism with which the whole subject is generally treated.

The study of the subconscious may be made the basis of vague and fruitless speculations such as have been set forth by Hartmann, or it may be systematically carried out as in the present volume with a view to its logical and practical application in pedagogics and penology.

The book is divided into three parts, viz.: Suggestibility, The Self, and Society. In the first of these the meaning of the term is defined, the distinctions between normal and abnormal (hypnotic), suggestibility established, and the nature of hynosis defined—and this is done most admirably as the "inhibition of the inhibitory centers." This idea is clearly elucidated by the theory that in man there exists a double system of nervous centers, the inferior and the superior. The inferior is organic and reflex, and, save for the inhibitory effect of the superior nerve centers would respond in a direct reflex action to every impression from without. This reflex action, however, is inhibited in the normal condition by the higher nerve centers whose special function it is to distinguish between the impressions to be acted upon and those to be ignored. In the normal condition these two nerve systems act in perfect harmony. In the hypnotic state the inhibitory centers act but feebly or not at all, leaving the lower or organic consciousness to respond to all external stimuli indiscriminately.

The chapters on "the subconscious self and unconscious cerebration" and on "the double self" are of great interest to even the casual reader, and in fact throughout the book a most interesting collection of data bearing on and illustrating the particular points under discussion are presented, some from personal experience and experiment of the author, others from well authenticated sources.

While the volume has but little to offer to the physician save in so far as he is an alienist, it will prove of absorbing interest to every one who has even superficially observed the singular phenomena of subconsciousness and suggestion.

Elements of Latin.—For Students of Medicine and Pharmacy. By George D. Crothers, A.M., M.D., Teacher of Latin and Greek in the St. Joseph (Mo.) High School; Formerly Professor of Latin and Greek in the University of Omaha; and Hiram H. Bice, A.M., Instructor in Latin and Greek in the Boys' High School of New York City. 5¼ x 7½ inches. Pages xii-242. Flexible Cloth, $1.25 net. The F. A. Davis Co., Philadelphia.

A constantly growing use for just such books as this has been built up by reason of the decline in favor of "the humanites" as the sole means of mental training.

A proper comprehension of the little Latin still used in medicine involves a study of the elements of Latin grammar, which in the little book before us are reduced to their lowest and simplest terms. This book is in many respects the best of the two or three works of a similar class which have appeared in England and America, and to students of medicine whose preliminary education did not embrace Latin we most heartily commend it. The list of anatomical proper names will prove particularly useful.

An Epitome of the History of Medicine.—By Roswell Park, A.M., M.D., Professor of Surgery in the Medical Department of the University of Buffalo, etc. Illustrated with Portraits and other Engravings. One Volume, Royal Octavo, pages xiv-348. Cloth, $200 net. The F. A. Davis Co., Philadelphia, 1897.

While it is manifestly impossible to collect within the space contained in this volume a complete history of that most interesting of all arts, the art of healing, Dr. Park has succeeded in preparing an epitome which while very condensed in form is still entertainingly presented. As the author very truly states the history of medicine is full of valuable and fruitful lessons as to what not to do and a study of medicine in its historical aspects is not wholly devoid of practical benefit from a professional standpoint. Dr. Park's volume will therefore be not only interesting, but valuable to the careful reader.

A Text-Book on Surgery, General Operative and Mechanical.—By John A. Wyeth, M.D., Professor of Surgery in, and President of the Faculty of the New York Polyclinic Medical School and Hospital, etc. Third Edition Revised and Enlarged. Illustrated. Pages x-997. D. Appleton & Co., New York.

The dedication of this volume to J. Marion Sims, "whose brilliant achievements carried the fame of American surgery throughout the civilized world," catches the eye and calls to mind the fact that Dr. Wyeth like Dr. Sims is a southern surgeon and is himself a prominent member of that brilliant group of men from the South who occupy high places in the medical world of New York city, their work in their several specialties shedding luster alike on the land of their birth and the city of their adoption.

The original edition of this work appeared in 1886. A second edition was published in 1890 and we now have before us the third edition, which, because of the rapid advances in surgical science and operative technique during the seven years which have intervened is practically a new work.

The volume is characterized by its direct, clear and forcible presentation of the essential points concerning the large variety of subjects treated of. Its use as a text book is facilitated somewhat at the expense of its typographical beauty, by the liberal use of italics, which serve to point out to the student the points of special importance.

The illustrations are clear, accurate and well printed. The use of blue and red inks for the veins and arteries respectively, will, no doubt, materially aid to impress the location of these ducts on the student's mind, and aids very materially in the proper comprehension of the plates.

Several half-tone photographs are introduced in this edition with good effect and it is to be hoped that the use of illustrations of this nature will continue to grow in popularity.

In its previous editions this work took the highest rank as a text-book and the present edition fully bears out the claim of the author that it has been brought down to date.

TREATMENT OF ERUPTIONS DUE TO CONTACT WITH ANTISEPTIC SOLUTIONS.—The solutions of carbolic acid and of corrosive sublimate, which are in general use in surgery, occasionally give rise to very troublesome eruptions on the fingers and the hands of the surgeon. Dr. Frickenhaus (*Sem. Med.*) has found that the best way of treating this medicinal dermatosis, judging from his own personal experience, consists in local application over the eruption of liquor ammoniæ, or of liquor potassæ diluted with equal parts of water. The alkaline solution is applied with a pad of cotton-wool, tied to a stick. As soon as the part has dried it is covered with a layer of collodium. The pruritus disappears at once. If it reappears later on, another application of ammonia or of caustic potash and of collodium is made. Definitive desquamation takes place within a few days.

FAVORITE PRESCRIPTIONS.

Ointment for the Treatment of Alopecia Areata.—Dr. Balzer.

Mercury subsulphate	2 grs.
Flowers of sulphur	4 grs.
Oil of cade	15 grs.
Vaselin	30 grs.

Mix.—For external use.

This ointment is applied to the affected parts in the evening, before retiring.

In addition, the head is washed several times a day with liquor hydrargyri, pure or diluted with an equal amount of water, and each morning, after this washing, the head is rubbed, more particularly the bald spots, with the Saint Louis Hospital stimulating lotion, which is composed of 125 grammes of camphorated alcohol, 25 grammes of oil of turpentine, and 5 grammes of liquid ammonia.

For the Diarrhoea of Phthisis.

Pulv. catechu	30 grs.
Syr. krameriæ	1 oz.
Tinct. cinnamomi	10 drops
Vin. rubri	3 ozs.

A tablespoonful three or four times daily.

For Spasmodic Cough in Adults.

Bromoformi	1 dr.
Tr. gelsemii	2 dr.
Syr. lactucarii	2 ozs.
Pulv. acaciæ	q. s.

One teaspoonful three to four times daily.

Ointment for the Treatment of Scabies.—Dr. L. Leistikow.

Beta-Naphthol	75 grs.
Precipitated sulphur	150 grs.
Storax	ââ 7 drs.
Powdered pyrethrum	
Lard	3 ozs.

This ointment is rubbed in once a day for three days in succession, during which the patient should wear flannel next the skin.

Vermifuge for Children.

Benzonaphtol	30 grn. (2 gme.)
Santonica	30 grn. (2 gme.)
Sugar	80 grn. (5.2 gme.)

Divide in 20 powders, two to five of which are to be taken daily.

For Chronic Cystitis.

Methylene blue C. P.	32 grn.
Powdered talcum	48 grn.
Lanolin	sufficient for 24 pills.

Two to four pills daily.

For Local Treatment of Rhinitis.

T. T. Purkitt, M.D., recommends the following as a local application in both atrophic and hypertrophic rhinitis:

Guaiacol	1 drachm
Menthol	40 grains
Cocaine hydrochlorate Camphor	of each 20 grains
Liquid petrolatum	4 ounces

M. Sig.—Use in atomizer, spraying nose and throat every three hours, or more often if possible.

An Injection for Gonorrhoea in Women.

Lutaud (cited in the *Journal de Medecine de Paris* for January 2) employs the following formula:

Alum, Borax, each	450 grains
Quinine sulphate	15 grains
Carbolic acid, Essence of thyme, each	30 drops
Glycerin	3,000 grains

M. A tablespoonful, in a pint of warm water, to be used as a vaginal injection two or three times a day.

A Powder for Difficult Dentition.

Dr. S. Santoire, of the Borough of Brooklyn, sends the following formula to the *New York Medical Journal*, and says that he has used it with great success for over twenty years in hospital and private practice:

James's powder, Calomel, each	1 grain
Sodium bicarbonate	12 grains
Dover's powder	2 grains
Sugar of milk	12 grains

M. Divide into twelve powders. To a child from six months to two years old a powder may be given every four or five hours, in syrup or in milk and water.

For Laryngismus Stridulus.

Pot. citrat.	ʒ i ℈ i
Pulv. ipecac.	ʒ iii
Tr. opii	gtt. xvi
Syr. simp.	℥ iii
Aq. dest.	℥ iv.

M. Sig.—Teaspoonful every hour.

For Pertussis.

Tr. belladonnæ	℥ ii
Tr. valerianæ Tr. digitali aa	℥ i.

M. Sig.—For children under five years of age, 5 to 10 drops should be daily administered, increasing within one week to from 30 to 60 drops daily, in divided doses.

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A QUESTION OF ETHICS.

A DIVISION of sentiment seems to exist among the members of the New York Academy of Medicine on the question of the admission to its sessions of reporters from the lay press. The academy as a body declined to express any views upon the admission of lay reporters to the proceedings of the several sections, leaving the matter to be determined by each section for itself. A motion to instruct the secretary not to send announcements of the meetings to the public press was lost, and this vote is taken by the *Medical News* as an indication "that a majority of the members of the Academy of Medicine would not like to lose any opportunity of giving their opinions and papers for advertising purposes to the public press."

The medical press is presumably subject to the code of ethics in much the same manner as the body of physicians itself. If this be so the staid and respectable *Medical Record* has strayed from the straight and narrow path. We find the New York daily papers giving "spread heads" to the announcements of Dr. Schlatter's operation of the excision of the stomach, the story beginning in the newspapers thus: "The *Medical Record* will to-morrow publish the following account of the first successful removal of the stomach." The natural inference to be drawn from the phraseology of this introduction is that the editor of the *Medical Record* has furnished the lay press with advanced proofs of the article in question with the express purpose of securing its insertion in the public press with a view to its advertising advantages. Surely the molder of professional opinion should be held to as strict or even more strict accountability than those who he instructs. If lay reporters must be barred from the Academy of Medicine then the sending of advanced proofs to the lay press must be condemned. "Tempora mutantur et nos mutamur in illis."

THE NEW YORK CITY BOARD OF HEALTH AND THE SALE OF ANTITOXIN.

IT is difficult if not impossible to strike precisely the golden mean in matters of sanitary legislation. Some sanitarians would confer autocratic powers upon the board of health, while others hesitate in advising the sacrifice of political freedom even though the object be so important a one as the preservation of the public health. It is dangerous to place too much power in the hands of any man or board, but fortunately, so far, such power as has been granted health boards has very rarely been abused.

Much discussion has been aroused in New York city by an effort now being made not precisely to limit the powers originally vested in the Board, but to revoke some special powers conferred upon that body by the State Legislature some three years since. At that time serumtherapy was on trial in this country, and the supply obtainable of the domestic diphtheria antitoxin was quite limited. With this fact in mind the legislature empowered the Board of Health of the City of New York to sell any surplus of antitoxin which the Board should produce. It is asserted that this permission has been utilized in a manner and to an extent which could surely not have been contemplated by the Legislature which granted it, for this "surplus" production has grown to such an extent that it is said that the New York City Board sold to the Chicago Board between five and six thousand dollars' worth of serum in one year, and that at a price fifty per cent. below that at which they furnish it to purchasers who reside and pay taxes in New York city. If this latter charge is true, and we are credibly informed that it is, the injustic of the situation becomes at once apparent. The Board of Health is supported by the taxpayers of the city for the sole purpose of looking after the health of this city. Anything done by the Board aside from the care of the health of this city is outside the sphere of their duty. If they sell the "surplus" antitoxin to the Chicago Board at a smaller price than to the citizens of New York, they are manifestly helping to care for the paupers of Cook County out of the funds of this city, and this is so contrary to all possible intent of the act permitting the sale of the surplus that we feel confident that every legislator who voted in favor of granting the permission to make the sale in the first place will promptly vote to recall this permission when he learns the method in which this permission had been used or abused.

The permission should never have been granted in the first place. Let the Board produce enough for its own needs, let it give away all that is needed for the indigent sick of our own city, but do not let it any longer continue to utilize the taxpayers' money in furnishing cheap antitoxin to other Boards.

THE PUBLIC HEALTH BILLS IN CONGRESS.

THE Senate Committee on Public Health have reported adversely the bills to establish a department of health. In doing so the committee recommended very much the same plan as was proposed some time ago by Dr. Jerome Cochrane. We quote from the report.

"In our opinion, it is wise and necessary to retain the present system of quarantine under the management of the Marine-Hospital Service, with its hospitals, quarantine stations, improved apparatus for the investigation of disease germs, and corps of officers, twenty-five per cent. of whom have experience in the prevention and treatment of infectious diseases, and especially of yellow fever. It may be found expedient hereafter to expand the service into that of a department, but to do so now would mean the useless expenditure of money and the destruction of the only systematic antagonism to the invasion of contagious disease.

"While we believe that the quarantine jurisdiction of the Marine-Hospital Service should be retained, we are clearly of opinion that its powers should be enlarged and made more distinct and uniform. No timidity nor adherence to technicalities should prevent the adoption of any measures which are necessary to exclude contagious diseases from our shores. The experience of past years, and especially of the last summer, demonstrate the absolute and immediate necessity of so amending existing laws as to enlarge and concentrate the powers of the Marine-Hospital Service, so that the present sporadic and conflicting condition, in which there is constant friction and collision between Federal and State officials, shall be changed, and the exclusive, ultimate control be given to one authority."

This report is precisely in line with the opinion of many, if not most of the leaders of medical thought and in harmony with views already expressed in this Journal.

THE VIABILITY OF THE TYPHOID BACILLUS IN THE SOIL.

EXPERIMENTS recently carried out in England by Dr. John Robertson and Dr. Maitland Gibson, under the normal conditions as to soil, temperature, moisture, nutriment, etc., seem to have clearly demonstrated that the Royal English Commission on the Metropolitan Water Supply were wrong in stating that the typhoid bacillus could not, when exposed on the surface of soil in fæces or in other organic matter, remain alive for a longer period than fourteen days or thereabouts, although some laboratory experiments carried out appeared to afford corroborative evidence on this point.

In Dr. Robertson's work we have an outdoor experiment carried out on a large scale under conditions ordinarily met with. It afforded abundant evidence that although the typhoid organism under certain conditions may be killed off when the conditions are favorable, it may even survive the frosts and rains of winter and spring. Under ordinary circumstances the unfavorable conditions of a low temperature are sufficient to prevent the development and spread of the typhoid organism; but when favorable conditions of nutrition are introduced, the bacillus is able to withstand the action of the low temperature, and to survive until the warm weather comes round, when it again becomes active. It is to this balancing of conditions that the medical officer of health will have to look if he is to cope successfully with the spread of typhoid.

Another point raised by Dr. Robertson is that vegetation appears to interfere with the spread of typhoid organism. How far this may be due to the abstraction of soluble organic matter from the soil by the roots of the grasses and plants, must at present remain doubtful, but the experiments carried on point to this as being a possible explanation of the localization of typhoid in regions in which vegetation is active.

The Cuban question has its sanitary as well as its political side. Should Cuba attain independence, with the United States as its "nearest friend," the representations of our government concerning a proper sanitation of the harbor and city of Havana would no doubt be given careful consideration. Let Havana be put in a sanitary condition and the risks of the introduction of yellow fever into the United States would be decreased fifty per cent.

The reported success obtained by Dr. Schlatter, of Zurich, in excising the stomach and uniting the æsophagus direct to the small intestine is calculated to wholly upset all accepted theories as to the part played by the several organs in the function of digestion. The case will be followed and the results investigated with the most profound interest for either our theories as to digestion are wrong or our organs possess an unsuspected amount of capacity for adjustment to new conditions.

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PUERPERAL GANGRENE.*

By MAGNUS A. TATE, M.D.

Cases of puerperal gangrene are indeed a rarity, and it is with some degree of pleasure that I have the honor of presenting the history of a very unique case to the Cincinnati Obstetrical Society. Gangrene is death of the part en masse, and is generally divided into two main varieties, the dry and moist. I shall deal almost exclusively with the dry form.

Dry gangrene is often spoken of as mummification and gives to the tissues a dried appearance. The watery elements of the blood are carried off, there is a gradual diminution in the arterial supply, while the outflow of venous blood continues unobstructed. The soft structures become smaller, take on a hard, leathery feel, the skin wrinkles, the temperature of tissue falls and soon the color changes to a greenish black hue. The most common example of dry gangrene (generally spoken of as typical), is the so-called senile gangrene. I am able to find but a few cases where the puerperal state is complicated by gangrene, and I thought it might be of interest were I to give a short history of each.

CASE I.—Mrs. G., age 36, healthy and active. Delivered of her fourth child, lochial and lacteal secretion were natural. On the morning of the fourth day patient had a severe rigor and when seen her countenance anxious and distressed, face pale, the eyes sunk and languid and she was screaming from excruciating pain in the left leg and foot, but referred principally to the upper and inner portion of the calf, which was cold and tense, but not increased in size. This state extended to the foot, on the fore part of which a large spot of ecchymosis appeared, most evident upon the metatarsus and creeping upward to the ankle joint. The uterus was perceptibly larger than usual. Pulse small and rapid, thirst urgent, tongue dry and coated, some nausea but no vomiting, lochia had ceased and milk scanty. In the evening pulse feeble, tongue parched and of a fiery red hue, mind sluggish and wandering, the discoloration had reached the rise of the calf of the leg (having a wavy margin), and still advancing. The following morning vesication had begun on the spot first discolored and patient rapidly sinking. Death put an end to her sufferings early on the fourth day of the disease, and the eighth day of delivery.

CASE II.—Patient aged 25. Ten days after delivery with her first child was seized with gangrene of the lower extremities. The gangrene involved the foot and leg nearly to the knee joint, the patient was greatly exhausted and anxious, but not suffering severely. The limb was amputated at the lower third of the thigh, but not a drop of blood followed the knife. The patient died next day, sinking gradually without suffering.

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*Read before the Cincinnati Obstetrical Society.

Case III.—Patient had previously borne a large family. Last labor was easy, for it came prematurely, child dead born. On the third or fourth day subsequent to delivery, fever supervened, followed by swelling of the left leg, which was attended by great pain and suffering. In the course of two or three days gangrene set in and she died ten days after delivery.

Case IV.—Patient aged 39. Pregnancy favorable until within a month of delivery, when she suffered from cough and great debility. Labor, however, was expeditious, lochia small in quantity and the after pains slight. The woman continued doing well for ten days, when symptoms of pleuritis with considerable constitutional disturbance presented themselves. Two or three days after her recovery from the pleuritic attack she complained of pain in the heel, passing from thence to the great toe and ankle joint. Pain was treated as neuralgic, but with no good result. At length a livid spot appeared on one of the toes, the temperature of the foot and leg gradually diminished and there was an impaired sensibility. The toes severally became black and this appearance extended so as to involve the foot and ankle. The line of demarcation formed about two inches above the ankle joint, and amputation practised above the knee. Recovery complete, and she bore two children since the occurrence of the attack of puerperal gangrene. The above four cases were taken from Simpson's work on obstetrics.

Case V.—Swayne (Transactions of the Obstetrical Society, of London, 1884) relates a case occurring during the seventh month of pregnancy. The disease came on after a long journey and attacked the integuments and muscles over the space of the size of a man's fist, on the upper and inner third of the right thigh. The symptoms had existed about four days before the occurrence of premature labor, but were not very severe until after delivery, when they became much intensified and proved fatal early on the third day. There was no injury, wound or erysipelatous inflammation to account for the occurrence.

Case VI.—Patient, aged 25, primipara. Previous history, had had typhoid fever three years ago, since that time perfectly healthy. Height five feet and six inches, weight one hundred and sixty-five pounds. No history or appearance of any syphilitic lesion. Family history negative. Pregnant six months and a half when first taken sick at her home in Springfield, Ohio, and the following is as correct and detailed a history as I was able to secure.

August 9, 1897. Patient took a bath, caught cold, and from that time her sickness began.

August 10, 1897. Patient described her condition as being so nervous all day that she felt like crying.

August 11, 1897. Early in the morning noticed an œdematous condition under the eyes and of the feet, and later in the day (the œdema increasing constantly), the abdomen began to swell and her breathing became somewhat labored. Headache was intense. Under the care of the family physician the swelling subsided, and she seemed to improve greatly in the next four days.

August 20, 1897. Woke up with a violent headache and before a physician could be summoned she had a convulsive seizure, this in turn followed by a second, and this by a third attack, which was longer and more intense than the other two. During the third attack patient bit her tongue and quite a hæmorrhage followed. We can readily imagine what a horrible and ghastly sight she presented. Vomited freely before and after each convulsion.

August 25, 1897. Patient was brought to Cincinnati and placed in the Jewish Hospital. At this time her breathing was so labored she could not lie down, and rest had to be secured by hypodermics of morphia, which she stated were given to her very freely.

August 27 and 28. The dyspnœa readily disappeared and her general condition greatly improved.

August 30. The swelling from the abdomen had nearly all disappeared and there was no perceptible trace under the eyes. In the evening she complained of pain in the abdomen which came on regularly, and increased in frequency, and the following morning, September 1, 1897, she gave birth to a seven and a half months' dead child. Patient had nearly a painless delivery.

September 2, 1897. Complained of a sleepy feeling in the left foot with some pain which subsided towards evening, and on the following day she was very comfortable and entirely free from pain.

September 9, 1897. The right foot began to have a sleepy feeling in it, which in turn (within a few hours), was followed by the left, and in the evening a bluish patch appeared on each ankle. She complained bitterly of pain in the feet and ankles. The bluish discoloration spread rapidly up the legs. Patient left hospital and I was called to see her.

Upon examination I found that the gangrenous condition involved both feet and legs nearly to the knees, having a wavy outline in front and extending up to the popliteal region posteriorly. There was no line of demarcation present. The feet were turned in, and had a greenish black, dry and a somewhat leathery appearance. To the touch they were cold and clammy (as if the feet and legs had been encased in ice), the skin wrinkled and one spot of vesication on the right leg posteriorly and two on the left. I was unable to detect any pulsation in the feet, and her description that they had a numb, woody feeling seemed to me very applicable. The legs above the knees were warm, but the pulsation of the femoral artery could not be detected. No dyspnœa was present, breathing was regular, no heart murmur, but a slight irregularity in beat ranging from 100 to 120 per minute, the mind clear and patient perfectly rational. Bowels were constipated, and urine loaded with albumen. Pain in the feet and legs seemed almost unbearable at times.

September 20, 1897. For the first time there was fever, her temperature being 100°, no doubt due to infection, and towards evening there was a perceptible odor of dead tissue.

September 21, 1897, temperature 103°.

September 22, 1897, temperature 104° in the morning, and patient died the following morning at 2.00 a. m. Her mind remained perfectly clear until 24 hours before death. A few hours before death there was a marked disintegration of tissue, a large slough appeared on the left leg posteriorly and another one on the right leg more posteriorly and to the inside. At no time was there any evidence of a line of demarcation. A complication which she complained of at nearly every visit, was two huge bed sores, they developing very early, about the seventh day after confinement. We find that patient was confined September 1, 1897, bed sores developed in seven days, gangrenous patches in nine days, and death twenty-three days after confinement. The following physicians saw the case with me—Drs. Bramble, Kiely, Taylor and Ransohoff.

Etiology.

In the typical senile gangrene we have a calcareous condition of the arteries and a disturbance in function of the vasomotor nerves, the circulation in an extremity being much impaired. The long continuance of ergot has produced sloughing, an example being gangrene of the big toe. This drug is supposed to act by keeping up arterial spasm. Independently of any disturbance of the circulation, we may have destruction of the cells of the soft structures. The tissues of the body at large may be in an impaired condition, from long continued fevers or in individuals suffering with diabetes. Gangrene has resulted from injuries, undue pressure, inflammatory swelling, ,intense heat or the reverse, and also in parts deprived of their nerve supply. The tissues in dry gangrene are not invaded by microbes, and therefore become mummified, producing slight or no constitutional disturbances, but when the tissues break down the staphylococcus and streptococcus find a fertile soil. My case was a typical example of this. Wm. Hunt, ,after a thorough investigation, claims that diabetic coma holds second place to traumatic gangrene, including those from frost bite, burns and scalds. Many have cultivated various forms of bacteria, but Rosenbach found a peculiar spore bearing bacillus, which for a time played an important role in the causation. Koch, experimenting with the field mouse, produced a progressive gangrene from inoculation with chain micrococci. Double infection of gangrene and tetanus may occur, while septic infection is rarely or never seen with gangrene, and may be explained by microbic antagonism. Senn (Transactions of the American Medical Association in 1888), says: Gangrene resulting from mycosis of the tissues is caused by one of three well defined conditions.

1. The microbes are so numerous in the capillary vessels that their presence interferes mechanically with the blood supply, and death of the part ensues in consequence of greatly diminished or suspended nutrition.
2. The microbes in the tissues produce ptomaines which destroy the tissue by their direct destructive action on the protoplasm of the cells.
3. The specific inflammation caused by the microbic infection is so intense, that the inflammatory products in the para vascular tissues accumulate so rapidly, and in such abundance, that nutrition is suspended by impairment or suspension of the arterial supply, or mechanical interference with the venous return of the blood from the part, or both of these conditions combined. For these reasons no one variety of microbes can be the sole cause of gangrene.

Treatment.

We may divide the treatment into the prophylactic, medical and surgical.

1. Prophylactic—Remove all causes which may favor the development of gangrene and adopt measures to promote circulation.

2. Medical—Try to establish collateral circulation. We may practice moderate elevation of the limb if that be the part affected. Disinfect the part, try to keep it dry, odorless and warm. If it be an extremity we may wrap the part in cotton or wool. The patient may suffer excruciating pain, if so there is no alternative but the free use of morphia. We may try to build up the system, put the patient on a nutritious diet, milk being preferable, and do not let the bowels clog. Alorosoff gives the history of two cases of the extremities where galvanism gave excellent results.' In one of the cases amputation was performed, but the gangrene was not arrested until galvanism was tried.

3. Surgical—Naturally amputation is the only safeguard, but it is a wise physician who knows when to amputate, and few care to use the knife upon an almost hopeless case, and duty must be backed by a courageous heart. If we can discover pulsation of the main artery in the limb, amputation should be at the point at which pulsation is detected, and never amputate low down. If our patient be an elderly person or the cause be diabetes, it is a hopeless case and amputation should not be practiced.

THE SYNDROME OF CHRONIC ARTHRITIS DEFORMANS.

Dr. F. Barjon (*Gazette des Hopitaux*, August 28, 1897) concludes a paper with the above title as follows: "1. Debility, predisposition and heredity, together with various pathogenic influences, develop rheumatism; either acute articular rheumatism or pseudo-rheumatism, such as that resulting from the different infectious diseases—gonorrhœa, scarlatina, tuberculosis, diphtheria, etc. In any case it does not seem to depend upon a primitive lesion of the nerve centers. 2. In these diverse chronic manifestations there is a clinical syndrome, always the same, evolving three periods—articular, neurotrophic and myelopathic—always accompanied by essentially the same anatomical lesions of the articulations and bony extremeties, and having constantly the same urosemeiographic curve. 3. The distinction actually established between the affection called "true rheumatism" and the "pseudo-rheumatism" should be considered as provisory. It is destined to disappear with the more accurate determination of the causes of each rheumatic process and the conditions which vary the ulterior evolution of this same process. 4. The X-rays may be very useful in differentiating anatomical lesions created by the chronic rheumatismal syndrome and those of other deforming joint diseases, such as gout and nervous affection."

CHRONIC LARYNGITIS—SOME OF ITS CHIEF CAUSES AND RESULTS.*

JOHN F. WOODWARD, M.D., Norfolk, Va.

The subject of this paper, second to none in importance wherein the air passages are under discussion, has not been discussed of late with that interest and thoroughness which characterizes usually the investigations of the throat and nose specialist. While brochure and caption specializing the influence of nasal and pharyngeal stenosis or obstruction have appeared, yet their ultimate design seems to be to impress us with the remote possibilities rather than open our eyes to the omnipresent every day facts. I again insist that we need more bedside and office symptoms than we do meaningless theories and distorted hypotheses.

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*Read before the Seaboard Medical Association.

With the microscope, well equipped laboratories and the X-ray, medical research and investigation are the legitimate property of every scientific mind. Why not, therefore, feel it our special privilege to add something every year to a cause that is as broad and generous as time, and as lasting as the world itself. Every medical topic, though written upon and rehashed by men of known and unknown talents, contains at some time features new and interesting to all of us, did we but make them a part of our library.

Thus I present to you to-day no new theme, no new type of disease, but a few causes and results which follow each other so closely that their conspicuous absence or mere mention in text books makes them of no uncertain interest.

You are no doubt familiar with the important discussions of to-day—"How to keep the sidewalks clean," "Can we all ride bicycles?" subjects that disturbed not the minds of our early fathers in medicine, yet to-day are of vital importance as things good or evil, to hamper or encourage an every changing people in the pursuit of health or happiness.

You have noticed, in public halls, public conveyances, stores and many other places, cuspidors here and there. They are not simply for tobacco chewers. We are a race of spitters and "hawkers." Did you ever stop and think why it is that two-thirds of our people have to curette their throats every ten or fifteen minutes and then lubricate the congested surface with saliva? Are not our social chats constantly being interrupted by "hawks" and "hemms," and the clergy and public speakers generally resorting to cough lozengers and lubricants? Are not many of our best vocalists forcing their voices at the expense of chest and vocal cords? There is a cause for this common human distemper outside of the habit feature. It is chronic laryngitis, the subject of this paper.

Chronic laryngitis is a chronic inflammation of the mucous membrane of the larynx, very common, and most frequently seen in adults; generally secondary to some acute inflammation, the remote expression of some primary laryngeal irritation whose persistence is but the first fruit of an endless chain of conditions the logical result of an abnormal state of the upper air passages. As the wind blows from land or water, so is the climate of that locality. Laryngitis is insidious in its onset and indefinite in its limitations; characterized by hoarseness, tendency to clear the throat, and constant tickling as if some foreign body were in the way, unexpected expulsion of tough balls of mucus, sluggish movement of the vocal cords, with occasionally unilateral paresis, fatigue of the throat during and after talking or singing, voice worse in the morning, but better after using it, more or less redness of membranes with mild or decided swelling of parts, seldom ulcers, pain or fever, and in many cases an irritant cough.

I shall limit myself to the causes and results, as the pathologic symptoms are thoroughly discussed by the different authors on this subject. Having questioned my patients very closely in the last few years, as to when they first began to notice that their throats were becoming affected, none of them could give a definite date, but referred to a period when they had head colds and stuffy sensations in their heads, and later on a consciousness of throat trouble, a sense of fulness and tickling with a desire to swallow or clear away something, or get rid of a dripping from the vault of the pharynx. Many of them followed this sequence—nose trouble, fulness in the ear or ears, and then irritation of the larynx. In some cases there was a sense of dryness instead of hyper-secretions. They could all recall a time when they had had colds and nose trouble. There are many inherited tendencies and physical conditions that render acute laryngitis liable to take on a chronic state, yet, the recuperative power of the larynx is very active unless aggravated by morbid environments.

Lately I have had some very interesting cases that have so impressed me that I feel as if a healthy upper air-passage would generally mean a healthy larynx.

Etiology, as commonly noted in text-books, consists of phthisis, syphilis, cancer, lupus, polypoid growths, alcohol, tobacco, the exanthemata, inhalations of irritant particles of dust, metal, drugs, over use of the voice, and nasal disorders. The latter merely referred to without saying much to qualify their prominence as factors in producing or abetting a chronic state of the larynx. On the contrary, I look upon disorders of the nose and the naso-pharynx as the chief and primal causes, and when they do not originate they stimulate this condition of the larynx. Tobacco smoking, except cigarette inhaling, which I most heartily condemn, and alcohol play no special part in these cases outside of the fact that an excess may irritate and aggravate a throat that is already diseased, and lessen to some extent the chances of a complete cure. Irritant drugs and metals will irritate the nose and the naso-pharynx as well. The other causes referred to seldom appear as a cause of a true chronic laryngitis in my practice.

The following cases will illustrate:

Case I.—Mr. W. A., aet. 30, consulted me in the early part of 1897, complaining of constant worry about his throat. Tendency to hawk and clear the throat, and at times when coughing small tough particles would fly from his mouth in the most unexpected manner. He referred to a fulness in the ears when his throat was bad, and sitting in a draft would change the tone of his voice in five minutes, talking and singing make his larynx feel tired and full, voice soft at times, and then very harsh, any irritant causes him discomfort, and changes in temperature produce a profound impression upon his voice, while his pharynx and naso-pharynx felt stuffy and full of mucus. He has hypertrophy of both inferior turbinates and septal spur on the left. His larynx was red and slightly tumefied, with sluggish condition of all of the membranes. Treatment has almost entirely relieved him.

Case II.—Mr. A. came to see me in the summer of 1897 to have a grain of corn removed from his throat. He gave such a clear history of having swallowed the corn and then the sudden onset of the dyspnœa that

I felt pretty sure I had a case of foreign body in the larynx. Examination showed on the contrary that he had a chronic laryngitis with enlargement of the membranes. The swelling was so great that only the anterior portion of the left vocal cord could be seen, covered with a whitish mucus. He was soon able to use his voice and the grain of corn was never found. This case had every symptom of a foreign body in the larynx.

CASE III.—C. W., aet. 6, was brought to me last August with the report that he had swallowed a water-melon seed. The spasmodic dyspnœa and aphonia with other symptoms indicated just what his doctor had diagnosed, a seed lodged in the trachea. On examination I found no seed but a very red and congested larynx. As he was so comfortable at times I let him alone with some simple treatment. About the third day I was hurriedly called but found him sleeping. I took his temperature, 103 F., and then put him on some fever treatment. In a few days he was all right, except his throat was irritable for some time after.

CASE IV.—A. G. came to me a few days ago to have a pin removed from her throat; she said she had a pin in her mouth when she fell asleep, and when she awoke she felt the pain. I found no pin, but tonsillitis and chronic laryngitis. The larynx was congested and the patient hoarse. Whitish threads of mucus hung from the vault of the pharynx.

CASE V.—C. M., aet. 35, consulted me about nine months ago about loss of voice and asthma. Septum bent towards the left, with adhesions, nasopharyngitis with follicular pharyngitis, chronic laryngitis with enlargements on the right side that looked like malignant tumors. Right vocal cord almost motionless, approximation impossible, cords swollen and covered with mucus. He cannot make high or low notes. His asthma has left him, but the treatment so far has not entirely restored his voice.

CASE VI.—Mr. S., aet. 30, has had voice fatigue and hoarseness for some time. He is a public speaker, has follicular pharyngitis and noise trouble, slight nasal catarrh. I found chronic congestion and enlargement about the laryngeal membranes. Voice entirely gone, could only whisper, left vocal cord sluggish and the arytenoids did not approximate on attempt at phonation. Treatment of nose and throat relieved him in six weeks.

CASE VII.—Mr. H., aet. 25, clerk, had almost complete stenosis of left nostril with follicular pharyngitis and constant dripping in the throat. Chronic laryngitis was the result, and in three months he had lost his voice. His larynx was slightly congested and rough looking, with a tenacious mucus hanging to the cords. The nose was operated upon and the air space made almost perfect and his pharynx and larynx treated and in five weeks he could talk as well as ever.

CASE VIII.—Mr. M., aet. 29, N. Y., consulted me in November, 1897, about his tonsils. I found him with chronic tonsillitis and unable to talk above a whisper. He said he had had throat and nose trouble for several years, but had been without his voice for only six months and had been told by good specialists that he would not recover it again soon. After treating his nose and tonsils I put him on treatment for his voice. I did not see him again, but one month later received a letter from him saying he was perfectly well and could talk as well as ever. There was no paralysis in his case, but the same sluggish condition described above.

These cases are interesting to us in many ways, especially since they point out a condition of the vocal cords that is mechanical to a great extent and amenable to treatment, rather than a true paralysis. It also gives us an insight into many of the ills that present themselves in voice culture, as well as a solution of the question in many cases of suspected foreign bodies in the larynx and in the trachea.

It is my aim in further discussing this subject to add another voice to the already large list of believers that nasal and naso-pharyngeal disorders by direct, as well as by reflex and mechanical interference, abet and foster a chronic state of the larynx. There is a combination of effects direct and reflex exhibited in disorders of the ear, nose and throat, depending upon a peculiar sympathy, wherein what seems to be a single result is the totality of a concerted action of the three factors. Kurt, recognizing this sympathy, put sedatives on the conjunctiva to control whooping cough, and on the mucous membrane of the nose to stop laryngeal spasm. Is it strange that the larynx, delicate and easily inflamed, placed as it is at the apex of the air funnel, should feel and respond to the irregularities of the upper air passages?

Given, then, a larynx with its delicate mucous membrane, and its full supply of squamous epithelium over the arytenoid and vocal bands, closely allied to cutaneous substance (Virchow) with a few glands (in the arytenoid and vocal bands) and full supply of blood vessels, a ready tendency of this epithelium to take on epithelial changes, and the connective tissue ready to hypertrophy, with an acute inflammation or irritation from any of the causes mentioned above, is it not most natural for this state to be converted into a chronic condition from the effects of half heated air, proximity of a congested pharynx, a constant dripping of disorganized mucus from the vault of the pharynx and the hyperæmia consequent upon the constant effort to clean the larynx?

Yet, I cannot fully agree that the most of these cases where enlargements occur are the pachydermia of Virchow or the quasi-tumors of Tissiers. It is indeed an enlargement, and hypertrophy will occur elsewhere if the mucous membrane is irritated and hyperæmic. That hypertrophic and hyperplastic conditions are conductive to the more prompt establishment of benign and malignant tumors I agree, inasmuch as the larynx is prone to take on such changes.

Armstrong, writing in the *New York Medical Journal*, January, 1898, on the ætiology of chronic broncho-nasal and gastro-intestinal catarrh, refers to the results of deflected septum, exostoses, enchondromata and true hypertrophy, and says this condition, "is almost the universal of hypertrophic pharyngitis and laryngitis," and also, "mouth breathing, or what is practically the same, breathing solely through the inferior meatus, because of obstruction in the upper part of the nose, is the exciting agent producing laryngitis, which eventually resolves itself into chronic hypertrophic laryngitis. By this obstruction the air is shut out of its proper physiological channels and is not properly warmed and moistened, and as a result the moisture of the lower pharynx and larynx is soon consumed and a dry burning irritation of the larynx is set up, described by patients as a choking sensation, a feeling as if a lump was in the throat, which is often erroneously diagnosed by physicians as globus hystericus. Chronic hypertrophic laryngitis sooner or later causes a chronic irritation followed by a persistent hacking cough. The lungs subjected to this constant concussion soon take on a bronchial inflammation which furnishes a nidus for the tubercular bacillus."

From this you see it is well to keep constantly before us the three points laid down by Greville Macdonald:—

1. Air respired through the nostrils is brought nearly to the temperature of the blood.

2. Dry air becomes saturated with moisture.

3. Exchange of gases in the air and in the blood of the mucous membrane takes place.

The air current, as suggested by Kayser and Paulsen, hugs the septum and passes up over the inferior turbinate, making a semicircle before passing into the larynx. This is important to remember, but not essential. As all of the water in a river does not run in the channel, so with the air current. It is the total mucous surface that is presented by the nose and accessory cavities that supplies the proper amount of heat. The hypter-trophies and obstructions that damage and render the air irritant to the mucous membrane of probably an already inflamed larynx. Therefore you can see how fast riding on the bicycle is detrimental to those suffering with any form of laryngitis. I have treated several cases of bicycle laryngitis lately. This should be remembered, especially by those who ride daily through crowded streets—keep the mouth shut and breathe through the nostrils as nature intended.

In considering the results of chronic laryngitis, outside of the risk to the lungs, there are many points of vital importance to our personal comforts as well as of special interest to the future welfare of the human race. The comforts of home life, the social problem, the drawing room and the concert, the theater and the counting room, the pulpit and the bar will all have to decide this question some way. They will feel its influence now and also according to the theory of heredity, and will naturally expect the advance of medicine to correct its evil tendencies. It will be a glorious day when cuspidors become relics and "hawking and hemming" are heard no more.

The eloquence of the pulpit and the bar, the passionate and living harmonies of our sweetest vocalists are of the mercy of the larynx. Nothing can lull to peaceful oblivion dull care more promptly than a well tuned voice. Yet daily cracked registers, false pitch and narrow compass are forced into baritones, contraltos and tenors with an inharmonious mixture of head and chest tones at the expense of the vocal cords. Hypertrophic enlargement and epithelial changes produce false relationship and imperfect co-ordination of the normal muscular action of the larynx, and a resultant hoarseness and fatigue of voice, and in many cases a paresis of one of the vocal cords, as seen in several of the cases above, or so much muscular lassitude that phonation becomes almost impossible.

In several of the cases reported there was unilateral paresis with false position of the affected cord upon attempt at phonation; in none of them, however, was there complete paralysis or the cadaveric position, but in all a loss of voice simply from the lack of power of approximation—a lack of power in the artenoid cartilages to sustain themselves in a fixed position so to give the crico-thyroids a chance to stretch the bands so that the register could be sounded.

The arytenoid, the crico-thyroids and the thyroarytenoids are the muscles that receive the brunt of the influence.

Sajous found hoarseness in professional singers when there was lack of lubrication of the cords. These cases were of course found in the dry catarrh of the larynx. Botey cured a case of supposed laryngeal obstruction by treating the mucous membrane of the nose. Raulin, of Marseilles, restored the voice of a singer by treating double hypertrophies of the posterior septum. There was a loss of tone in the upper register and he called it muscular fatigue. Uspensky also restored the voices of two singers by treating the hypertrophies of the middle turbinates. There was impaired resonance and false register.

Trifiletti lays stress upon morbid conditions of the nose and naso-pharnyx as factors in causing aphonia. Steward, of London, reported two cures of unilateral paresis, right side, both right middle turbinates enlarged pressing upon the septum.

Rault, of Paris, refers to eight cases of paretic aphonia cured by nasal treatment. Hunter Mackenzie speaks of tuberculous laryngitis and tumor formation as sequelæ of chronic laryngitis.

There have been many cases reported in the last half decade, and its evil influence recognized for many years, though few papers discuss the damage done to the voice as it deserves and its significance in diagnosing foreign bodies in the larynx.

Voice production is not simply the result of a harmonious control of head and chest tones and the ability to force the cords into a tonal relation, but is the correctness of pitch and range of compass happily poised by perfect control of the higher and lower registers through a specially cultivated will power to fix the cords and use the auxiliary muscles. To accomplish this a free air supply is essential, not through the mouth, but through the naso-pharynx with unencumbered vocal cords, flexible and active, with free use of the auxiliary muscles and perfect pectoral breathing. These are hardly obtainable with a stenosed nasal cavity and chronically inflamed and enlarged larynx.

Healthful environments and corrected nasal troubles will do a great deal towards obviating these calamities. A healthy nose will seldom need blowing and a sound throat will not often need clearing.

INTUBATION IN DIPHTHERIA.*

By W. K. SIMPSON, M.D., of New York,

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It can be said with truth that the advent of intubation for the relief of diphtheritic croup undoubtedly marked one of the greatest achievements of modern medicine, and, in connection with the present antitoxic treatment of diphtheria, has most materially lessened its mortality and robbed of its horrors one of our most fatal diseases. This can be appreciated if we consider for a moment the status of tracheotomy in its relation to croup before the days of intubation, and we cannot do better than quote the words of Dr. O'Dwyer in answering the question, "What led to the first experiment in intubation?" "Complete failure with tracheotomy in the New York Foundling Hospital, extending over a period of several years."[1]

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* Read at a meeting of the New York Academy of Medicine, under the auspices of the Section on Laryngology and Rhinology, March 3, 1898.

Notwithstanding that in a certain percentage of cases of tracheotomy under the most favorable conditions recovery ensued, the horrors and difficulties incident to operation in young children, the added surgical wound, with the chances of increased infection, the skilled and laborious attention necessary in the after-treatment, and, above all, the great fatality, caused an abhorrence alike on the part of both parent and physician—to the extent that the latter gladly delayed surgical interference as long as possible, and in many quarters the operation was practically abandoned and the little ones allowed to die after the gamut of non-surgical methods had been run. I have often thought that the delay due to this great dread of tracheotomy was itself largely accountable for the fatality attending its performance; for it was a brave surgeon who would tracheotomize in the earliest stages of laryngeal croup. It is fair to suppose that had this dread not existed and had the operation commonly been performed at an earlier stage the results would have been better. No wonder it is then that a thinking mind in constant association with diphtheritic croup and its deplorable results set about the institution of some other means for its relief; that such means were successfully put in practice, and that the unremitting patience and toil of the inventor were finally rewarded experience has fully demonstrated.

The real battle of intubation was waged and its glories won before the days of antitoxin, and had the percentage of recoveries been even less than that furnished by tracheotomy, it must not be forgotten that the simpler nature of intubation permitted its performance in hundreds of instances in which either the parents or physician would have objected to or even refused tracheotomy, thus in intubation furnishing an opportunity of at least attempting to save life, which would have been forever denied through tracheotomy. This is, doubtless, the individual experience of those who have intubated to any extent, and it receives further confirmation from the collective investigation of the American Pediatric Society,[2] in the report of which it is stated that out of 657 cases in which operation was performed there were 637 intubations and 20 tracheotomies. This is a point which has not been sufficiently emphasized in considering the great value of the former operation.

No new operation to supplant a well-grounded procedure can thrive without passing through the crucible of criticism and thorough testing, and intubation has been no exception to this rule; received, at first, both here and abroad with its measure of opposition and doubt, it may be safely said that they have been overcome, and that, in this country at least, it has rendered tracheotomy practically obsolete as a primary operation. It may always be taken for granted, in a case of general or pseudodiphtheria, that the onset of laryngeal symptoms, *i. e.*, croupy cough, loss of voice, and impaired breathing, indicates laryngeal extension of the disease, and this at once raises the question when to intubate, and let me say here, parenthetically, that my subsequent remarks will entirely consist in a consideration of intubation and its relations to the antitoxic treatment.

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[1] O'Dwyer, "The Evolution of Intubation."

[2] "Report of the American Pediatric Society," 1896–7.

The question of when to operate is always of vital importance, and especially so if for any reason antitoxin is not employed. We can recall the various opinions which have been held on this point, ranging from intubating at the very beginning of the manifestation of croupy symptoms to waiting for the more positive condition of progression marked by recession of the extraneous muscles of respiration and signs of cyanosis.

It has been well proven by the report of the American Pediatric Society, already referred to, that in sixty per cent. of the cases of laryngeal diphtheria intubation is not required if reliable antitoxin has been properly administered at an early stage of the disease. If, however, croupy symptoms supervene and progress, the use of the antitoxin should be continued, the dosage being based upon the age of the child and the amount previously given, and at the same time the croupy symptoms should be watched, remembering that it sometimes requires twenty-four hours for the full effect of the antitoxin to be manifested; this is especially important if the symptoms of laryngeal stenosis are the first indications of the presence of diphtheria. In either event, and here the initial dose of antitoxin should be a full one, in the interval while waiting for the antitoxin effect, if the symptoms of stenosis are progressive, intubation should be immediately performed; *never*, in any instance, is is justifiable to await the approach of the severer symptoms of stenosis. After intubation the use of antitoxin should be continued on the principles already given, to be discontinued as the membrane shows a marked tendency to exfoliate, and the respiratory symptoms a tendency to disappear, and as the other general conditions, especially the pulse and temperature, resume a more normal condition.

How Long Shall the Tube Remain in the Larynx?

In pre-antitoxin days the average period during which the tube was allowed to remain in the larynx was from six to seven full days. Under the present mode of combined treatment the time may be somewhat shorter, varying in different experiences from three to five days. The usual time at the Willard Parker Hospital is at present four days, and at the New York Foundling Hospital, three days. Personally, in private practice, I prefer to leave the tube in the larynx during five full days if there are no indications for removing it, on the general principle of avoiding unnecessary reintroductions.

In hospital practice, where assistance is always at hand in case of emergency, there is less danger in leaving the tube in a shorter time; for, should occasion arise, it can be at once replaced. Verbal reports from the institutions mentioned do not show any comparative increase of the necessity for reintroductions between the older and the present methods of combined treatment. The duration of the disease has been so shortened by our present treatment that undoubtedly in many cases the tube may be removed earlier without the necessity of reintroduction.

The principal indications for removing the tube previous to its final removal are severe discomfort or pain from pressure, especially if the pain be radiating in character, thus indicating the occurrence of ulceration, severe attacks of coughing, and sudden stenosis due to the lodgment of membrane in the lumen of the tube. This last-named condition is, perhaps, more likely to arise earlier under the antitoxin treatment on account of the earlier exfoliation of the membrane. In some instances, however, if the membrane be sufficiently loosened to block up the tube, the latter will be coughed up with the membrane. This is especially the case with the present rubber tubes, especially if the tube does not fit too tightly. If under these circumstances the tube is expelled, its reintroduction may *not* be necessary, or at any rate, the necessity of reintroduction will, as a rule, be sufficiently delayed to permit reintroduction by the physician in charge.

In a very small percentage of cases of intubation, after the original cause of the stenosis and ceased to operate, there occurs a more or less permanent stenosis, necessitating almost constant use of the tube for a period of a few days to some months. These cases are classed under the head of "retained intubation tubes." The course and treatment of this condition is most elaborately set forth in a classic article by Dr. O'Dwyer, read before last year's meeting of the American Pediatric Society, to the report of which I refer the reader for a detailed exposition of the subject, though it requires further experience for its full elucidation, which will only come from a very careful study of the few cases that will occur from time to time.

Dr. O'Dwyer, in giving the cause and seat of this persistent stenosis, says: (1) "The cause of persistent stenosis following intubation in laryngeal diphtheria can be summed up in the single word, traumatism. Paralysis of the vocal cords may possibly furnish an occasional exception to the rule. (2) The injury to the larynx is done by a tube which does not fit properly. It may result either from an imperfectly constructed tube, or from a perfect one which is too large for the lumen of the larynx, although suitable to the age of the child, or from a tube that is perfect in fit and make if it is not cleaned at proper intervals. (3) The *scat* of the lesion which keeps up the stenosis is just below the vocal cords in the subglottic division of the larynx, or that portion bounded by the cricoid cartilage. Exceptions to this rule result from injury produced by the head of the tube on either side of the base of the epiglottis just above the ventricular bands."

Dr. O'Dwyer sums up the avoidance of its occurrence and its treatment when present in a full appreciation of its causes and the skilful use of tubes of proper size, shape, and construction, and the use of the hard rubber tube now in vogue, which can be worn indefinitely without the occurrence of the calcareous granules which appear on the metal tubes, and which may become a focus of ulceration; further, the rubber tubes at their impinging points do not produce the same degree of pressure as do the metal tubes.

Technic of the Operation.

The patient should be held firmly upright on the left thigh of an assistant, whose legs are tightly closed on the patient's legs. The left arm of the assistant is thrown around the back of the patient, holding the left hand and arm of the latter, while with the right hand the assistant holds the patient's right hand. The right side of the patient is firmly held against the breast of the assistant, the left side of the patient being free. The second assistant stands back of the patient, holding the head firmly in a suspended position, and steadying the mouth gag with the left hand. There should be no twisting of the neck of the patient, who should be held perfectly straight. This cannot be too strongly emphasized, as it especially pertains to the successful introduction of the tube. The proper-sized tube having been chosen according to the scale, it should be threaded, always using braided silk of a size which will pass easily through the opening in the tube, and of a length which will permit of being looped over the patient's ear when the tube is in position, and so tied that the knot is always at a point farthest away from the tube.

The operator, standing or sitting in front and a little to the right of the patient, at a height which gives easy access to the mouth, the patient's mouth being well open and the gag on the left side, passes his left forefinger well down into the larynx over the epiglottis until he feels the two small tips of the arytenoid cartilages, which indicate the posterior portion of the larynx. Then the introducing instrument is quickly passed down over the palmar tip of the left forefinger until the end of the tube engages in the larynx, gentle pressure being continued until the tube is well down in the larynx, when the left forefinger is transferred to the head of the tube and the obturator removed by liberating the sliding catch on the handle of the introducer. The left forefinger should remain gently pressing the head of the tube until the obturator is well out of the mouth. *Care* should be taken that the obturator is not removed in any way from the tube until the latter is well down in the larynx, thus avoiding any danger of stripping off or wounding the mucous membrane.

Successful introduction of the tube is almost immediately rewarded by relief from the difficult breathing, which becomes more and more marked as the minutes go by and the patient passes into a condition of rest which is in marked contrast to that which necessitated the operation. The means of knowing that the tube is properly placed in the larynx are first, the relief in breathing, and second, the characteristic cough which immediately occurs and is of a moist metallic character produced by mucus and air passing through a metallic tube. This cough should always be looked for, and if not present should be provoked by the administration of a teaspoonful of diluted whisky or brandy. The character of the cough is peculiar and is far better appreciated by being heard than from any description. Oftentimes, in moribund cases, the cough may be delayed or be but feeble when it is heard. The cough is valuable in clearing the trachea of secretions, and as an indication of the firmness with which the tube is retained in the larynx.

Another way of determining whether or not the tube is in the larynx is by passing the left index-finger down into the œsophagus and feeling the tube through the anterior wall of the former. This means is of great service if for any reason the breathing is not fully relieved and if it is desired to be positive as to the position of the tube. If, however, after the introduction of the tube the breathing is not relieved or becomes suddenly worse, the question of having pushed down with the tube some detached membrane is to be considered—this accident may happen, but as a matter of fact is very rare. If it were of frequent occurrence it would be a most serious objection to the operation. The reason of its infrequency is that the stenosis is not entirely due to a complete membranous cast of the larynx and trachea, through which the tube has to pass, but to lessening of the lumen of the larynx by infiltration of the submucous tissue. This can be easily observed in a cross-section of a larynx from a case of diphtheritic croup.

The accident mentioned is more likely to occur in late cases of croup in which the membrane has begun to exfoliate, and at any time when traumatism has been occasioned by the introduction of the tube. It is accompanied by excessive coughing and a flapping sound caused by the loosened membrane. If for this or any other reason the breathing is not relieved, the tube should be withdrawn by the string and the child encouraged to dislodge the loosened membrane by coughing, after which a second attempt at introduction should be made. It sometimes happens that pieces of detached membrane accompany the withdrawal of the tube. If it is reasonably certain that loose membrane is blocking the tube and is not readily expelled, a short cylindrical tube (foreign body tube) may be inserted. These tubes for a given age are much larger in caliber than the ordinary ones, and allow large masses of membrane to be expelled. Owing to their larger size they should not be left in the larynx more than a few hours on account of the pressure which they cause.

Another accident which may possibly occur is the introduction of the end of the tube into one of the ventricles of the larynx. This is obviated by using the present type of tubes, somewhat bulging on the end, which thus permits them to override the ventricles, and by keeping in the median line during introduction. Introduction of the tube into the œsophagus will sometimes occur. This can be appreciated by failure to relieve the difficult breathing, and by attempts on the part of the patient either to expel the tube or by efforts to swallow. If the string is observed to be disappearing within the mouth, it is evident that the tube is in the œsophagus, and it should be immediately withdrawn. This accident is an avoidable one and need not occur if the proper rules are followed. In the cases in which I have seen the tube swallowed it has been passed through the alimentary canal within from two to four days without any accident. The tube may be occasionally swallowed when coughed up by the patient.

The string should be permitted to remain in place, being passed over the left ear, until quiet breathing is restored, from fifteen minutes to half an hour, and should then be removed by cutting one side of the loop close to the mouth, taking hold of the long end, and withdrawing while the left forefinger is making gentle pressure down on the head of the tube. Never, under any circumstances, remove the string without making pressure on the head of the tube, as the string becomes twisted in the mouth and will be caught in the eyelet of the tube and the latter itself withdrawn unless the counter-pressure is made. Another very important precaution in regard to the string is that the person holding the child should never release the child's hands until the string is removed by the surgeon. Almost the first thing a child will do if the hands are released is to instinctively pull at the string, resulting, of course, in withdrawal of the tube.

It is the practice of some, in preparing the child, to tightly encase the arms and chest in a draw-sheet wrapped around the body. While this keeps the hands out of the way, it is open to the objection of too firmly constricting the chest, and in case of artificial respiration being necessary, much valuable time may be lost. Also, some operators prefer to introduce the tube while the patient is in the dorsal position. I have had no experience with this mode of procedure and cannot speak of its merits.

In extracting the tube the same precautions as to the position and management of the patient during introduction should be followed. The instrument for this purpose is called the extractor. Before being used, it is absolutely imperative that the thumb-screw on the under side of the instrument should be so set that the proximal jaw can open just sufficiently to exert the proper amount of pressure within the opening in the tube. If the jaws are open too widely there is great liability of lacerating the surrounding mucous membrane in ineffectual attempts at removal. It is good practice to test the degree of opening of the extractor on a tube of the same size as the one in the larynx. In extracting, the left forefinger should be passed down on the head of the tube until the opening is felt, and then the extractor, closed, is passed down until the point strikes the head of the tube and enters the opening in front of the tip of the finger. When in the opening in the tube, the jaws of the instrument are opened by thumb pressure on its handle, and the tube withdrawn, pressure being continuous until the extractor and tube are removed from the mouth. Never have the thumb on the lever until you feel sure that the end of the instrument is in the tube.

Extracting the Tube.

The operation for extracting is perhaps more difficult than that of introduction, as it requires a finer degree of touch to determine the opening in the head of the tube, and the difficulty is increased in proportion to the smallness of the tube. Modifications, from time to time, have been made in the head of the tube and in the extractor to facilitate removal, but the original procedure just described is the one most universally employed. Extraction by pushing out the tube from below without any instrument may successfully be performed—if for any reason great difficulty is experienced in the application of the usual method—or in case of emergency when the tube must be removed by the nurse in absence of the surgeon. This is done by slightly inverting the patient, and, with mouth open, placing the thumb in the episternal notch and pushing the tube up in the mouth and grasping it with the fingers of the other hand or with a pair of ordinary forceps. This can be done by any one of ordinary intelligence in charge of the case, and is, under these circumstances, a most admirable method of extraction.

After removal of the tube the patient should not be left until there is sufficient evidence that the tube will not have to be replaced. A small dose of opiate may then be given to allay cough and irritation. Slight cough and hoarseness generally continue a few days to two weeks, especially the hoarseness, which, however, passes away without incident.

Feeding after intubation is best accomplished by having the child in an inclined position, the head being down. This is commonly called the "Casselberry" method. It is best performed by raising the foot of the bed, removing the pillow, and bringing the child to the edge of the bed on the side, and using for the purpose of feeding an ordinary duck-shaped feeding cup. This procedure prevents, in a great measure, fluids from entering the tube and the accompanying paroxysms of coughing. However, it is remarkable how some children, with a tube in the larynx, will readily learn to swallow in the ordinary upright position.

I consider it also very excellent practice to keep the patient in the feeding position during the entire period in which the tube remains in the larynx, in order to lessen the chances of secretions passing down through the tube, and thus, possibly, causing the development of pneumonia. The frequent removal of the tube for purposes of feeding has been advocated by some, but I think such a practice should be mentioned only to be condemned.

The food should be fluid or semi-solid, solid particles of food being avoided so as not to run the danger of large pieces being drawn into the tube. In case great difficulty is experienced in the use of the mode of feeding mentioned above, recourse may be had to alimentation through the œsophageal catheter, passed either through the nose or through the mouth, or, as a last resort, rectal alimentation may be employed.

I think it most important to watch the respirations during the entire period of intubation, as bearing on the progress of the disease. If they continue about normal it is indicative of favorable progress; if they show a tendency to increased rapidity, it is indicative of extension of the membrane—fortunately, however, the latter does not occur as frequently as it did in pre-antitoxin days.

Prognosis Under Combined Intubation and Antitoxin.

The prognosis of diphtheria under the present combined treatment is, I think, remarkably favorable, especially as compared with the results formerly obtained. A reference to this point in the report of the collective investigation of the American Pediatric Society[1] gives the mortality in cases operated upon by intubation, and in which antitoxin was administered, as 27.24 per cent. This is in strong contrast to the previous mortality, which ranged from 69.5 per cent. to 75 per cent. I have no doubt but that the prognosis will continue to be even more favorable as there is gained a better understanding of the combined treatment.

In a very small number of cases it may become necessary to perform tracheotomy, in the event of failure of intubation, but when this has been done, the percentage of recoveries has been very small, and conditions have been found which could hardly be reached by either operation.

In contemplating the performance of intubation one should not rely entirely upon written description for his guidance, but should acquaint himself with the operation by practice on the cadaver. This is, I think, a *sine qua non*. The perfected tubes of the present time are made of hard rubber over metal. This, as I have said before, allows the tube to be retained longer without the occurrence of calcareous deposits. These tubes exert less pressure, and can be more easily expelled in case of plugging with membrane.

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[1] Report of the American Pediatric Society, 1896-97.

In conclusion, what can be more fitting than to dwell for a moment on the results of intubation and its teachings. In a word, it has given us a comparatively simple means of combating a fearful emergency; it has taught us exploration of the larynx by the finger; it has taught the mind and hand to work in quickest harmony; it has taught us alertness and deftness in meeting emergencies, and has opened up and created anew the treatment of the entire domain of laryngeal stenosis.

Let us then honor the memory of Dr. O'Dwyer, since he left to humanity such a legacy.

HOW DO ANTITOXINS ACT?

At a meeting of the Pathological Society of London, Eng., on March 1, Dr. J. W. W. Stephens and Mr. W. Meyers read a paper on "Test-tube Reactions Between Cobra Prison and its Antitoxin." The experiments were undertaken to throw light on the much-disputed question of the mode of action of antitoxins. In brief, the two main views are: (1) That the cells of the animal body are necessary for the action of an antitoxin to make itself felt (Roux and Metchnikoff); and (2) that the antitoxin and toxin react chemically upon one another and that they can do so without the assistance of the living organism (Ehrlich and Kanthack).

The actual experimental observations which suggested the particular mode of experimenting were the following: Professor Kanthack, in October, 1896, before the Physiological Society, demonstrated the observation made by Brigade-Surgeon-Lieutenant-Colonel D. D. Cunningham that cobra poison when mixed with shed blood in a test tube prevents coagulation, but he also showed that this action could be prevented by previously mixing the poison with antivenomous serum—the mixture now coagulating as normal blood-clots—and finally he showed that the action of the serum was specific, diphtheria antitoxin having no such effect. In 1897 Ehrlich performed experiments upon the action of a solution of ricin *in vitro* on citrated blood. The clumping and precipitation of the blood cells which resulted could be completely done away with by previously mixing definite quantities of anti-ricin serum, and the mixture was also innocuous on injection into mice.

Mr. Stephens and Mr. Meyers accordingly were led to look for other reactions between a toxin and its antitoxin which could be demonstrated *in vitro,* and at Professor Kanthack's suggestion were led to examine (1) The action of cobra poison on the blood *in vitro;* (2) the effect of Calmette's antitoxin upon this action; and (3) whether the "neutral point" *in vitro* was also the neutral poin *in corpore* for the animal whose blood was used in the experiment. Observations were made to see if the antitoxin neutralized the normal hæmolytic effect of cobra poison. Most of the experiments were performed by mixing known volumes of blood and poison solutions in small test tubes and—after about twelve hours—noting which of a series of tubes showed any hæmoglobin in solution.

They pointed out the necessity for dissolving the poison in solutions which were isotonic or only slightly hypertonic for the particular blood under investigation so that the action of the poison could be estimated.

Dr. Stephens and Mr. Meyers found that the hæmolytic action could be completely arrested by definite quantities of serum. Repeated observations showed that 0.1 c.c. of isotonic serum was always sufficient to arrest the hæmolytic action of 0.1 milligramme of poison on guinea-pigs' blood. They found that when they used larger amounts of poison, although completely neutralized as regarded hæmolysis, yet on injection into animals they were rapidly fatal. They based their explanation of this fact upon the work of Mitchell and Lembert and Martin, who have come to the conclusion that snake poisons are composed of at least two, probably more, proteid constituents, and they suggested accordingly that the poison may contain, in addition to the toxic substance which is neutralized by the serum, another toxic substance which is not so neutralized by the amount requisite to prevent hæmolysis. The similar observation made by Wasserman on pyocyaneus toxin was explained by Mr. Meyers on the supposition that the large quantity of toxin present paralyzed the cells in the body and prevented the tissues modifying the antitoxin from its inactive to its active form. Dr. Stephens and Mr. Meyers, however, agree with the opinion expressed by Ehrlich, that the toxin and antitoxin react chemically *in vitro*.

They summarize their results thus: (1) Cobra poison is strongly hæmolytic *in vitro;* (2) this action is neutralized by antivenomous serum and the action of the latter is specific; (3) for certain doses (0.1 milligramme) the measure of this neutralization *in vitro* is a measure of the neutralization *in corpore* for guinea-pigs; and (4) this neutralization is chemical and not cellular or vital.

CLINICAL LECTURE.

A CASE OF PNEUMONIA, WITH ABORTIVE CRISIS AND PREMATURE RESOLUTION, FOLLOWED BY SUPPURATION OF BRONCHIAL GLANDS.*

By SIR WILLIAM BROADBENT, Bart., M.D., F.R.S.,

Physician in Ordinary to H.R.H. the Prince of Wales; Consulting Physician to St. Mary's Hospital.

By the kind indulgence of my colleagues I have once more the privilege of giving a clinical lecture to the students of St. Mary's Hospital. I call it a clinical lecture, although you did not watch the course of the illness and follow the development of the symptoms with me at the bedside, inasmuch as I take a case as a text and comment upon it as I go along. The physical signs are such as you will easily understand from description, and I hope to make clear inferences and conclusions based upon them.

The patient, a strong, healthy looking boy of 12, was taken ill on the evening of Thursday, December 2, 1897, when he was sick, and felt chilly. There was no distinct rigor. On the previous Saturday (five days before) he had played in a football match, and on the Monday had been out in the storm to watch the wrecking of the Broadstairs Pier. He had a slight cold and cough, as also had other boys in the school, but there was nothing suggestive of influenza in the symptoms. The attack speedily assumed the characteristic features of pneumonia, and when I saw him on the 5th, the temperature was 105°, the pulse 120, the respirations 48. There was a harsh cough, without expectoration, and pain in the right side, but in the abdomen rather than in the chest. The physical signs developed slowly, and it was only on the morning of this day that Dr. Raven had recognized indications of commencing consolidation at the right base. These were more distinct at the time of my visit, and distant tubular breathing was also to be heard above the spine of the scapula. We were agreed that the case was one of pneumonia, that the attack was severe, but that there were no special grounds for anxiety. A high temperature in pneumonia is not necessarily a very serious matter, especially at the age of 12. The respiration, it is true, was very rapid, and we should have liked to have had a good crop of herpes on the lips, but we saw no reason to apprehend a fatal issue. We prognosticated a crisis on about the seventh day, and recovery in due course. On Tuesday, Dr. Raven reported that the right lung was consolidated from top to bottom posteriorly, the temperature and symptoms generally remaining much the same. So far there was nothing unusual in the course of the attack.

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*Delivered at St. Mary's Hospital, London, On Wednesday, however, instead of the crisis we were expecting, with a rapid fall of temperature to normal or subnormal and a general amelioration in the symptoms, the temperature only fell to 103°, and the boy instead of being better, was obviously worse in all respects; he became delirious, and the pulse went up to 144 and the respirations between 50 and 60.

I was therefore asked to see the patient again, and reached his bedside at Broadstairs about 10 A. M. on Thursday, the 9th. The boy was lying on his left side, which was his usual position throughout, and although naturally very alert, he took no notice of what was passing in the room; from time to time he made some rambling remark, but when roused he knew me, and expressed surprise at seeing me. There was a deep crimson circumscribed flush on each cheek, the pulse varied from 130 to 140 and upwards, and he was breathing at the rate of 64 times a minute. The temperature had just been taken, and was found to be 103°.

On proceeding to examine the boy, instead of the dulness on percussion which I expected to find, there was everywhere resonance. At no point was there a trace of the consolidation which less than forty-eight hours before had involved almost the entire lung. On auscultation again air penetrated freely every part of the lung, and neither rhonchus nor sibilus nor redux crepitation could be detected anywhere. The inspiratory murmur was harsh, and the expiratory murmur was distinct. Dr. Raven confirmed these observations, which contrasted in the strongest manner with what he had found only the day before.

Nothing could be more grave than the state of things thus revealed. We should expect so striking a deviation from the usual course of events in pneumonia to be serious on various *a priori* grounds, and as the matter of experience the patient who is the subject of this lecture is the only one whom I have known to survive. Happily such cases are rare. As you are well aware, the usual termination of pneumonia is by crisis; the temperature falls, the pulse quiets down, the respiration becomes less frequent, the tongue cleans, and a tranquil sleep brings to an end the delirium or stupor, the muscular tremor or twitching, or other evidence of nervous prostration or disturbance, which may have supervened; but the crisis relates to symptoms only, not at all to physical signs, and while the patient may have all the appearance of convalescence, dulness, tubular breathing, and bronchophony are found to be as distinct as ever, and a week or ten days will be occupied in removing the exudation from the air cells. Now whatever view we may take of the intimate changes which bring about the crisis, whether we attribute it to the death of the pneumococcus or to the formation of some antitoxin, or to the completion of some process of elimination, the crisis with which we are familiar is clearly Nature's method of bringing the disease to an end, and with each day of delay in its appearance anxiety as to the result increases. When it is postponed beyond the ninth day it may usually be concluded that something underlies the pneumonia, such as tubercle or septicæmia; but even more serious than delay of the crisis is an abortive attempt. Nature has made her effort and failed, and nothing more is to be expected of the constitution; but there was another obvious source of danger. Two days previously the air vesicles of a great part of the lung had been choked with exudation which had now entirely disappeared; it had certainly not been expectorated or brought up and swallowed; it could only have been absorbed, and from its character there was every reason to fear that it would play the part of a poison in the blood. The patient indeed was evidently under the influence of a poison.

It is not easy to understand such rapid absorption, and I make no attempt to explain it. I cannot help thinking, however, that the deep and frequent respiration is a factor in the causation. In the only other case of the kind in which I have had the opportunity of minute and continuous observation there was frequent and deep breathing and incessant loud, distinct talking, at first sensible and coherent, gradually becoming incoherent. In this case, which was watched minutely, the clearing up of the consolidation took place from below upwards, redux crepitation and entry of air being first heard at the extreme base, first of one lung, then of the other, the pneumonia having been double. Both lungs were clear in less than thirty-six hours.

The boy then lay in the condition of torpor with muttering delirium, just described, and a point, which at once struck us, and to which I call your attention, was that, while the degree of fever explained the frequency of the pulse, there was nothing whatever in the state of the lung or heart to explain the inordinate frequency of the breathing, which, as I have said, was at the rate of 60 or 64 respirations to the minute. Such a departure from the normal relation between the pulse and respiration added greatly to the gravity of the symptoms. It could only be due to an effect of some poison on the nervous system, or, as was suggested by the sequel and by another case which I have seen, to some irritation at the root of the lung. After the examination, as the temperature seemed to be rising, it was again taken and found to be 103.8°; half an hour later it was 104.8°, upon which the boy was twice freely sponged with cold water, and an ice bag was applied to the head. This had little effect, since in another hour the temperature had further risen to 105.5° or 105.6°. Upon this the patient was enveloped in a dripping sheet, which was so disposed as to favor abstraction of heat from every part of the surface, and the moisture was continually renewed by droppings of ice-cold water from a sponge. The temperature was taken at the mouth every few minutes, and it was fully twenty-five minutes before any impression at all was made on the heat. Of this the first indication was paling of the flush on the cheeks, and when this became very decided the wet sheet was withdrawn, the boy, still naked, being covered by a single blanket. He enjoyed the cold application very much, and became quite sensible. The temperature fell to about 103° for a time, but the wet sheet was again required three hours later for a period of a quarter of an hour. Five grains of quinine were given after the first wet pack, and again later in the day.

There can be little doubt that the wet sheet saved the boy's life. He was getting visibly worse in every respect from hour to hour, and was apparently drifting rapidly into hyperpyrexia.

From this time the temperature gradually fell for some days, always, however, touching 101° at some period in the twenty-four hours, and there were at times oscillations which demanded a dose of quinine. The pulse remained frequent, and the respirations maintained a great relative rapidity of about 40. The intellect was clear, and the patient took his food well. Cough persisted, and the lungs were frequently examined with a view to the detection of any morbid condition which might have been overlooked, or of any new complication which might arise, or of anything which might explain the rapid breathing and persistent temperature. During the afternoon of the 10th a very scattered, coarse crepitation was heard for a moment over the upper part of the right lung anteriorly, but it was dismissed by an act of coughing, and from time to time afterwards fugitive signs were detected at different points. We had in mind in particular the possibility of an empyema imprisoned between the base of the lung and the diaphragm, or in the fissure between the lobes of the lung, but no evidence of any such complication presented itself.

At the end of a week, during which there had been apparently a distinct though slow progress towards convalescence, the temperature rose slightly to 102° and 102.6°, and the cough became more violent and continuous, but without expectoration, beyond such as was excited by the act of coughing itself, and on December 21 I again saw the patient. By this time the paraxysms of coughing were uncontrollable, and would go on for two or three hours without intermission. No linctus gave relief, and inhalations of pine oil and of hot vapor with benzoin afforded no alleviation whatever. The cough was almost like that of whooping-cough, and from time to time provoked vomiting. An attempt was finally made to quiet it by inhalations of chloroform, but nothing short of complete anæsthesia sufficed to cut short the paroxysms. There was then an interval of quiet sleep, and the cough did not recur for some hours. It was observed that talking, eating, and turning on the right side provoked attacks.

There could be no doubt as to the significance of a cough of such a character; it could only be due to enlarged bronchial glands. Irritation and inflammation of the glands at the root of the lung had obviously been set up by the material absorbed from the air vesicles. The lymphatics had thus been one channel by which the exudation had been removed.

Small doses of iodide of potassium were given, in the hope of reducing the size of the glands, and the cough was quieted as far as possible by an opiate and bromide linctus and by inhalations of vapor with tinct. benzoin and succus conii, or of pine oil, or from time to time of chloroform. On the 23d a chill, scarcely amounting to a rigor, and a sudden rise of the temperature to 104.2°, announced suppuration. This could scarcely be elsewhere than in one of these enlarged and inflamed bronchial glands, and unmistakable evidence was furnished of pressure upon the root of the lung by imperfect entry of air into the right lung generally, with distant tubular breathing in the first space near the sternum, and sight impairment of resonance in the right interscapular space about the level of the spine of the scapula. On the 24th, when I again saw the patient, it was further found that the heart was considerably displaced to the left. The apex beat was outside the anterior axillary line, and unduly high. Next day it was as far out as the mid-axillary line, and about the level of the nipple, and the upper line of dulness ran along the second space. These physical signs raised the question of acute general dilatation of the heart and of effusion into the pericardium, but the apex beat and right ventricle impulse were too definite and the sounds too distinct and too nearly normal for either of these conditions. There was, moreover, no dulness to the right of the sternum, and the heart sounds were scarcely audible outside its right border. The heart was evidently carried bodily to the left, and as there was no fluid in the right pleural cavity, either free or encysted between the diaphragm and the base of the lung, the only assignable cause was swelling of the mediastinum, possibly an abscess there. Corroborative evidence of mediastinal implication was present in conduction of the tracheal breath sounds to the manubrium, especially over its right half, but there was no pressure on the vena cava, the veins of the neck not being full.

The outlook at this stage of the case had again become very uncertain. There could now be no doubt that suppuration had taken place in the mediastinum. We could be practically certain that it had started in a bronchial gland at the root of the lung, but there was reason to fear that it might have extended into the connective tissue of the mediastinum. Everything depended on the outlet which the matter might maek for itself. We hoped it might be into a bronchial tube, but we could not be sure of this, even if the abscess had formed in a gland. A mediastinal abscess properly speaking could only be expected to open into the pleural cavity, and that after a long and trying period of suppurative fever.

Happily on December 25, a small quantity of pus suddenly appeared in the scanty colorless expectoration, which was all that had hitherto been seen, and soon afterwards a single streak of blood. The amount could not have been anything like a drachm, but its escape was followed by a temporary amelioration of the symptoms; for three days the temperature did not exceed 101.4°, and the cough became much less violent and the respirations less frequent. The temperature, however, again rose to 102.6°, and had a suppurative character, and there were profuse night sweats. The displacement of the heart was unchanged, so that the menace of perforation of a mediastinal abscess into the pleural cavity was not entirely withdrawn. In view of this contingency, the boy's condition now permitting of the journey to London, he was brought up from Broadstairs by Dr. Raven on December 29. There was now dulness at the right base posteriorly more than half way up to the angle of the scapula and round the lateral aspect of the chest, with absence of breath sounds, impairment of vocal resonance, and extinction of vocal vibration; there was, in fact, for the first time, fluid in the pleural cavity. This seemed like a preparation for rupture of a mediastinal abscess in this direction, and I rather welcomed the appearance of this fluid, first because I had in a previous case of abscess in the mediastinum known serous effusion, seen to be such when withdrawn by aspiration, to precede the penetration of pus into the cavity; secondly, because I thought the fluid might dilute the pus and diminish the irritation of the pleura which it would set up.

The anticipation based on the appearance of pleural effusion was, however, never realized. A second expectoration of a small quantity of pus took place on December 31, but after this the fever was rather higher, and the oscillations and perspirations more marked, till on January 4 another and more copious expectoration of pus took place. It was not preceded by cough, but came on after a slight effort, and so suddenly that the first outburst could not be collected. From what I saw I estimated the amount to have been 3 or 4 drachms. Considerable coughing followed the appearance of the pus for the rest of the day.

There had been improvement from the time of the first expectoration of pus; it continued steadily and more rapidly after the final discharge. The temperature speedily fell to the normal level or below it, and the perspirations entirely ceased. The boy got up for the first time on January 8, and left for the country on January 24, not, of course, very strong, but otherwise apparently well. The heart had not regained its normal position, and the second sound was reduplicated, and there was still a zone of dulness round the base of the lung.

The improvement has continued. Dr. Walter Broadbent reported on January 28 the apex beat to be 1 inch outside the nipple line, and the second sound to be reduplicated at the base. A week later the apex was only ¼ inch outside the nipple, and the aortic and pulmonic second sounds were synchronous. On February 15 the heart had practically regained its normal position in the chest; tracheal breathing was no longer heard over the manubrium, and all that remained at the base of the right lung was a scarcely recognizable impairment of resonance and of respiratory murmur.

As I have discussed each phase of the illness in the order of its occurrence, no formal commentary on the case as a whole is necessary, but I must not conclude without an acknowledgment of the zealous and intelligent co-operation of Dr. Raven.

TREATMENT OF INFLUENZA.

The January, 1894, number of *The Quarterly Journal of Inebriety*, published under the auspices of the American Association for the Study and Cure of Inebriates, Hartford, Conn., U. S. A., says through its able editor, T. D. Crothers, A.M., M.D.: "Antikamnia is one of the best remedies in influenza, and in many instances is very valuable as a mild narcotic in neuralgias from alcohol and opium excesses. We have used it with best results." In a letter of more recent date to the Antikamnia Chemical Company, Dr. Crothers writes: "Antikamnia continues to improve in value and usefulness, and we are using it freely." *The Edinburgh Medical Journal*, Scotland, says, regarding antikamnia: "In doses of three to ten grains it appears to act as a speedy and effective antipyretic and analgesic." *The Medical Annual*, London, Eng., says: "Our attention was first called to this analgesic by an American physician whom we saw in consultation regarding one of his patients who suffered from locomotor ataxia. He told us that nothing had relieved the lightning pains so well as antikamnia, which at that time was practically unknown in England. We have since used it repeatedly for the purpose of removing pain, with most satisfactory results. The average dose is only five grains, which may be repeated without fear of unpleasant symptoms."

SELECTED ARTICLES.

THE TREATMENT OF SYPHILIS BY INTRAMUSCULAR INJECTIONS OF MERCURY.*

By F. J. LAMBKIN, A.M.S.

Success of the Method in India.

The British Army Medical Report for the year 1891, contained a paper by me advocating the treatment of syphilis in the army by intramuscular injections of mercury, and expressing a hope that the treatment be given by army medical officers. This trial has been given to it, more especially in India, with favorable results. In the last two Army Medical Reports the Surgeon-General with Her Majesty's Forces says that the treatment has been generally successful in that country, not only in the actual treatment of the disease itself, but also in lessening the admissions into hospital for syphilis—that is to say, the admission rate, high as it was, should have been still higher but for the treatment of the disease by the intramuscular method.

The chief advantages which I claimed in the paper referred to were:

1. That by the intramuscular method the soldier can be treated whilst out of the hospital at his duty for that length of time during which it is absolutely necessary he should be with any hope of curing the disease. This is nearly impossible with other modes of giving mercury.
2. That the treatment is absolutely in the surgeon's own hands, and he knows for a certainty whether the patient gets his treatment or not.
3. The mercury given hypodermically does not produce diarrhœa and indigestion, which it so often does when given internally.
4. By this mode of treating syphilis the state becomes a distinct gainer, in that the time actually spent in hospital by the syphilitic soldier is much lessened, whilst the chances of his readmission for the same is reduced to a minimum.

Results.

As far as my own practice is concerned, during the six years which have elapsed since the publication of the above paper, the intramuscular method has given me the very best results, in not only getting rid of the primary symptoms in a wonderfully short time, but also in preventing further outbreaks of the disease, and in some cases, when I was able to observe for a lengthened period, probably curing the patient completely.

The soldier, on first getting syphilis, is kept under treatment in hospital only as long as any of the more active primary or secondary signs of the

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disease exists; when these disappear he is discharged to his duty, and ordered to attend hospital on one day a week for an injection. In the army there is no difficulty in seeing that the men attend regularly, and they are taken away from their duty for not more than a few minutes a week.

The Preparation to be Used.

The preparation of mercury which I recommended for injection was as follows: Hydrarg, ʒ j; lanolin. pur. ʒ j; ol. carbol (2 per cent.) ʒ j. Maximum dose 10 ♏ for an injection. At first I used a solution of perchloride (gr. 1-3 to 20♏), as also of sal alembroth, but was obliged to give them up, principally on account of the pain which followed at the site of injection, and also because in one case a large abscess formed after an injection of the perchloride solution. To within the last six months I continued to use nothing but the mercurial cream above described, and with it I have given over 6,000 injections, not one of which has been followed by abscess. In some slight induration remained at the site of injection for a few days; the operation itself was practically painless, and only in a small number did any pain occur afterwards. I can truly say that not one soldier who has been injected by me has been incapacitated (through the injection or its results) from doing his duty. I have always been sensible of the fact that the mercurial cream possesses very great drawbacks, for it requires a certain amount of care in compounding and dexterity in injecting. In cold weather it becomes semi-solid, whilst in hot the reverse occurs, so that the metal is no longer suspended. These defects can of course be remedied. I have used the preparation in mid-winter in England and in the plains of Jamaica with the greatest success, but at the same time a certain amount of trouble is required, which is sure to militate against the preparation being generally used.

While serving in Jamaica I tried a solution of sozoiodol of mercury. It was supplied to me in tablets, but I did not meet with the same success as when using the mercurial cream. Since coming home, and during the last six months, I have given the sozoidol of mercury a further trial, and have used the following solution: Sodii iodidi, gr. 10; hydrarg, sozoiodol, gr. 5; aquæ distillatæ, 200 ♏; 10 to 15 ♏ as an injection. The solution is made up in the hospital dispensary, and I have met with much more success than when I used the tablets. I find that (1) at the time of, and for some time after, the injection more pain is caused by the sozoidol solution; but this soon passes away, leaving no ill result. (2) It does not seem to me to have quite so rapid an effect on the disease as the cream; still, bearing in mind that it possesses none of the disadvantages of the latter, I have no hesitation in recommending it for general use in the army.

General Treatment.

Whatever solution of mercury is used, the following has been my mode of carrying out the treatment: When in hospital, patients undergoing the treatment are kept on a liberal diet and generally allowed a bottle of stout or beer a day. They are allowed up and advised to be as much as possible in the open air, and also to wash their teeth after each meal. Should there be any signs of the gums becoming spongy, they are given a strong mouth wash of alum and acetate of lead to use frequently.

Patients in hospital usually receive one injection weekly of 10 m. of either of the above solutions, but there can be no definite rule as to the number or amount of the injections, and the surgeon must use his own judgment. One of the great advantages of giving mercury hypodermically is that we can gauge the amount given in that way far better than when administered by any of the other methods, so that the number of injections and amount given ought to be varied to suit circumstances.

Method of Injection.

The site of injection is almost invariably the gluteal region. The needle is dipped in a 1 in 20 solution of carbonic acid, and is then pushed with a rotary motion into the muscle as far as it will go. The syringe which I use is made of vulcanite. The one originally supplied to me by Messrs. Krohne and Sesemann, of London, in 1890, I still use, and it is as good as ever. The needles are about 1 inch in length; I have used longer, but found no advantage in so doing. Platino-iridium needles penetrate better, and do not bend or rust. One accident liable to happen to these needles is that they very often split at the side, and care must be taken to examine them.

Cases Treated.

The cases of syphilis, numbering some hundreds, which have been treated by me by the intramuscular injections of mercury have represented the disease in every form, both primary and secondary: the former from the hard papule without any abrasion to the phagedænic sore rapidly destroying tissue; the latter from the secondary effects of syphilis, as represented by general glandular enlargements with cachexia accompanied by one of the milder rashes, to cases covered with rupial sores (these also destroying tissue), and others presenting symptoms of grave internal lesions.

Although I have before me the notes of all the above cases with the exception of two, I do not intend alluding to them in this paper further than to remark that the intramuscular treatment was a marked success all round, being just as successful among the negro soldiers as with the white.

The majority of these cases I was able to observe thoroughly. Most of them were kept under treatment for from five to six months, and others for much longer. They all, without exception, derived the greatest benefit from it. The average number of days in the hospital was twenty days. The average time under treatment, but doing duty, was five months. Some of these cases I saw two years later, after all treatment had been suspended; they had had no return of the disease, but were in the best of health, and all glandular enlargements had disappeared. It is, of course, impossible to be certain, but I truly believe that these men were cured of syphilis.

I will mention two of the above cases:

Private P. was a patient in hospital in Newcastle, Jamaica, suffering from secondary syphilis. He was in a fearful state. There was a phagedænic sore on the penis, two-thirds of the glans of which it had eaten away; he was covered with rupial ulcers from head to foot, totally confined to bed, cachectic, and so emaciated that he was a mere skeleton. Every known treatment had been tried, and mercury given in every way except by the intramuscular method, but the patient went from bad to worse, until his condition was considered to be most precarious. On October 4, 1893, by order of the senior medical officer, the patient was handed over to me for treatment, and on that day I gave him as a first injection 10 ♏ of the mercurial cream. As this case has already been fully reported, it will suffice here to state, that from the above date the patient began to improve in a marvellous manner, and that he, who was in a moribund condition when handed over to me was, five weeks later, having had six injections, out and about. Subsequently he was kept under treatment for months, and eventually went to the Reserve apparently quite restored in health.

I would here mention that from this and other cases which I have had I have learnt the important fact that mercury can be given safely and with the greatest success in cases of syphilis accompanied by phagedæna. This is contrary to the teachings of the late Dr. Carmichael, of Dublin, who emphatically condemned it in such cases. Personally, I have seen cases like this go from bad to worse when given mercury internally.

Another case which seems to me to be of particular interest is the following: At Jamaica, Corporal B. complained of feeling languid, having headaches, losing flesh, and being quite unable to continue at his duty. He said he had been ailing ever since his arrival in the West Indies early in 1894. He looked very anæmic and debilitated. Thinking his state of health was simply the result of climate changes, I ordered him tonics, etc. He did not improve, but in fact got, if anything, worse. On closer examination I found inguinal and cervical glandular enlargements, and learnt that in 1892 he had had syphilis—a sore on the penis—followed by a slight sore throat and a roseolar rash. He had been treated at the time in hospital for a month, and was then discharged to duty. Since then he had had no further treatment, as he did not report sick, although suffering now and then from sore throat and ulcers in the mouth, which were probably specific. On obtaining this information I concluded that his present debilitated condition was due to the syphilitic poison. All internal remedies were stopped, and injections of mercury given. From the first injection he began to look better, and one month later when he had had five injections he had gained 12 pounds in weight, and looked a different man. He continued to attend to receive an injection once a week for five months; at the end of this time he was apparently quite well. A year after I saw this man, and he had had no return of the disease, but was in the best of health.

This case is especially interesting, and an illustration of what happens with the early discontinuance of specific treatment. The syphilitic patient goes into hospital, is there treated until all active signs of the disease have passed away; there may have been an indurated chancre and one of the milder rashes; these vanish in perhaps a month's time; then he is discharged, and all treatment, of course, stopped. Should the patient be of robust physique, temperate in his habits, and the general surroundings and climate healthy, the disease may not trouble him again during his life. If, on the contrary, the physique be not of the very best, and he proceed to the tropics, during the first hot weather his general health falls below par, then the disease lays hold of him. That is what happened in the case just related. One cannot help thinking how many similar cases go undetected, until the disease declares itself, either by some fearful external ravages, or by still worse internal lesions. Treatment is then too late, and the man is either invalided out of the service or dies.

The Length of the Treatment Required.

The above state of affairs will go on as long as the older methods of treating syphilis remain. We must recognize the fact that with any hope of curing syphilis (and that it can be cured is now, I think, an accepted fact), treatment must be continued for months after all signs of the disease have disappeared.

Now, in the case of the soldier, is it to be expected that he be kept in the hospital over all this long period? And is it possible to treat him whilst out of the hospital by any of the older methods? I maintain that it is not; still to bring about his cure this is what is absolutely necessary.

The introduction of the intramuscular mode of giving mercury gets over this difficulty, for by it the soldier can be treated just as well out of hospital as in, and for as long a period as one wishes, with absolutely no trouble to himself, the only loss to the service being that he is taken away from his duty for half an hour each week. Who would suggest the treatment of the soldier whilst at his duty by one of the other methods—say the internal? Is there any possibility that it would be carried out regularly and systematically? In answer to this I would merely remark that it is hard enough to carry it out among the better-educated classes; how much harder would it be among soldiers?

I think the best indication as to continuing or interrupting the injections is the patient's weight. He ought to be weighed regularly, and if he gains weight or if it remains stationary and he appears to improve otherwise, continue the injections; if he does not appear to improve, and weight be lost, then the treatment ought to be interrupted for, say, a month, and then recommenced, when it will be found that weight will go up. I think that in the majority of cases, with interruptions, treatment ought if possible to extend over a period of from six to eight months.

The efforts of the medical profession to sustain measures to prevent the spread of the disease have long since been frustrated, and now that the Contagious Diseases Act has apparently been finally done away with and full sway given to syphilis to work its worst amongst our soldiers, its treatment becomes of more moment than ever. In the intramuscular method I believe we are in possession of a plan of treatment which increases our chances tenfold of not only alleviating but of curing the syphilitic soldier and rendering him fit to meet the many hardships of tropical service.

Finally, in the essay published in the *Army Medical Report*, 1891, I expressed a hope that medical officers would give the intramuscular treatment a trial. This they have done at least in India, with most favorable results. Let me in this paper tell them that my reason for advocating so strongly this mode of treatment is not so much because mercury, given in this manner, is more beneficial in the treatment of syphilis than when administered by other methods (personally I think it is far superior) but that it is actually the only reasonable method by which the syphilitic soldier can be kept under treatment over that period which we know to be necessary to ensure his cure; and I would ask them, whatever solutions of mercury they prefer to use, to give this method a fair trial, and they will not be disappointed with their results. Moreover, I feel certain that, if the treatment becomes general, it will not be long before the admissions, invaliding, and death-rates of the army show a marked decrease.

TUBERCULOSIS OF THE LUNGS.

Etiology.

H. B. Weaver[1] argues that malnutrition is the starting-point of all tubercular processes. While the bacillus of Koch is, perhaps, the most important of the several microbes that influence the progress of the lesion in the various forms of the disease, yet it does not of itself originate the malady in any form. Both factors, the dyscrasia and the bacillus, must exist in combination before there can be tuberculosis. Defective nutrition, which may be general or acquired, is the fundamental primary factor, and Koch's bacillus, which is infective in its nature, is the modifying secondary factor in the causation of phthisis.

Diagnosis.

Cog-wheel inspiration is a valuable early sign of pulmonary tuberculosis, according to J. P. Arnold.[2] It was present in cases when there were no changes in the percussion-note or in the vocal resonance; when there was neither cough nor expectoration. While it is true that this peculiar form of inspiration may be caused by other conditions than that of beginning tuberculosis, its occurrence immediately below the clavicle, especially on the left side, should always arouse suspicion, especially where there is an hereditary tendency, history of exposure to infection, or any progressive failure of health and strength without other assignable cause.

The application of tuberculin to suspected cases will often throw much needed light upon them, enabling the physician to reach a positive conclusion, and in the opinion of E. L. Trudeau[3] will give the patient all the chances of recovery that lie in the detection of the disease at such an early stage: before extensive lesions have developed or secondary infection has occurred. In view of the demonstrated accuracy of this text when applied to cattle and to other animals artificially inoculated in the course of laboratory research, where its correctness can be controlled by autopsy, the author considers it as remarkable that a method which has proved itself so generally reliable in detecting the disease in animals, and which offered such possibilities as a diagnostic agent when applied to man, should have been so almost universally neglected and generally condemned on scant evidence as utterly worthless and dangerous. While its beneficial influence as a therapeutic agent could be exercised only within certain very restricted limits, its undoubted diagnostic value steadily became more and more evident in the light of a slowly accumulating experience in its use.

Vetlesen[4] recommends the use of iodide of potassium in the diagnosis of phthisis. One tablespoonful of a 1½ per cent. solution given three times a day, causes the appearance of râles exactly limited to the portion of the lung where tubercular lesions are wont to appear. He describes 27 cases, 8 of which showed the sign mentioned besides cough and expectoration. In all these 8 cases the diagnosis of tuberculosis was verified. The remaining 19 cases were not influenced by the iodide, and two years later had shown no evidence of tuberculosis.

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[1] *Jour. Amer. Med. Assoc.*, Nov. 13, '97.

[2] *Med. News*, Mar. 20, '97.

[3] *Med. News*, May 29, '97.

[4] *Lyon Med.*, Dec. 5, '97.

Bergonié traces the outlines of the viscera, as ascertained by the ordinary methods, on the skin, and again traces them in the dark on the lines shown by the fluoroscope. Disen[5] adopted the same method by fixing a copper wire, bent to represent the outline of the heart, on the chest-wall, and then examining the patient with the fluoroscope.

Mark J. Knepp[6] calls attention to a peculiar formation of the head in tuberculous subjects. This may either be flat from side to side or be somewhat triangular in form, the base corresponding to the occipital bones. The author states that in several hundred cases seen, he found the association of a plano-parietal head a most trustworthy symptom of tuberculosis, not only of the lungs, but of any other organ.

Treatment.

CREASOTE.—E. Lemoine[7] gives indications and contra-indications for the employment of creasote. He states that this drug should not be given in all cases as soon as the signs of pulmonary phthisis are recognized, as is the general custom. Creasote should not be employed on the supposition that as an antiseptic it will destroy the tubercle bacillus in the body. The solution required to produce this effect would also be strong enough to kill the person. The effect to be produced by creasote is to develop an inflammation around the diseased centers: one, indeed, calculated to exert a stimulation favorable to the vitality of the animal cells. The object should be not only to determine the cases in which creasote is indicated, but to graduate the doses so as to limit the inflammatory phenomena which it always produces around the disease-centers. If the patient has some deficiency of resonance over a restricted area, with harsh respiration in this situation, prolonged expiration, but no râles; if he has never had hæmoptysis, and has no fever; if his general condition is fairly good, he is getting thinner, and his appetite is bad, creasote can be given: first, because, apparently, there is no peritubercular inflammation; and, second, because, from the wasting, we gather the though that the tuberculosis is advancing. If, however, in addition to the signs mentioned above, we hear subcrepitant râles around the zone of induration—manifestly indicating that there is peritubercular in flammation—and if the patient has fever, however slight, the employment of creasote is contra-indicated.

Briefly, creasote should not be given to a patient with fever or signs of congestion (inflammation), nor with wasting, loss of appetite, nor long-continued hectic. It may be given when there is no fever, or only the slight fever of suppuration, as during the formation of cavities. It should not be given, also, when there is repeated hæmoptysis.

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[5] *Med. Record*, Jan. 9, '97.
[6] *Med. Record*, Aug. 21, '97.
[7] *Le Nord Med.*, Sept. 15, '97.

Clifford Beale[8] recommends, as the least objectionable method to administer the drug, that pure beech-wood creasote be dissolved in cod-liver-oil, beginning with 3 or 5 minims, the same amount being added to the previous dose every alternate day until a maximum of 160 or 180 minims per diem is reached. The results obtained were highly satisfactory.

Chaplin and Tunnicliffe[9] speak in high terms of guaiacolate of piperidine as a substitute for creasote. The former not only possesses antiseptic power, but it also contains a constituent which possesses a nervine and vascular tonic action. When given hypodermically, it slows the heart, raises the blood-pressure, and greatly increases reflex excitability, and should, therefore, be regarded as a cardiovascular tonic and spinal stimulant. Fourteen cases, chosen at haphazard, were given, at first, 5 grains, three times a day, then gradually increased to 20 or 25 grains three times a day. It causes no unpleasant effects, is exceedingly well-borne by the stomach, and improves the appetite and general strength.

According to St. Clair Thomson,[10] in Dettweiler's sanitarium, at Falkenstein, creasote has been given a thorough trial, and has now been completely abandoned along with tuberculin and all other specific remedies. General dietetic and hygienic influences the only remedies relied on. Before attributing any virtue to the creasote it would be necessary to see the results obtained in an equal number of similar cases treated in exactly the same way, but with the creasote omitted.

Fisk[11] also emphasizes the uselessness of drugs in cases of phthisis, as the digestion should, under no circumstances, be compromised. He has often seen a patient take many drugs and fail rapidly, owing to anorexia and indigestion, who immediately began to improve when the digestive tract was cleared by the use of calomel and the use of internal remedies ceased.

H. B. Weaver[12] considers hæmotherapy, pure bullock's blood, or animal or vegetable nucleins, introduced through any part of the alimentary tract as the rational procedure in the treatment of tuberculosis.

YEAST-NUCLEINIC ACID.—Victor Vaughan[13] reports the results with nucleinic acid in 76 cases of tuberculosis treated from May, 1893, to December, 1895. Tubercle bacilli were found in all, and many were in the last stages of the disease. Of the 76 cases, 70 were cases of pulmonary tuberculosis. Of these, 30 died. Of these last, 9 were temporarily benefited. Of the 70 pulmonary cases the author says: "Seventeen have been continuously free from the bacillus for from one month to two and a half years, so far as can be determined from the sputum—*i. e.*, either there has been during this time no sputum to examine or that examined has failed to reveal the bacillus. To the best of my knowledge, another has been free from the bacillus for more than a year, and another has been free from the bacillus with the exception of a short time, and still another was free when last examined. Twenty were still infected at the last examination. Of these, 16 have been apparently improved by the treatment. It should be stated that none of these were hospital cases. I was not able to control their diet. Most of them were not rich, and had only inexpensive food. The hygienic conditions under which many of them have lived have not been satisfactory."

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[8] *Lancet*, Oct. 30, '97.

[9] *British Med. Jour.*, Jan. 16, '97.

[10] *Lancet*, Oct. 30, '97.

[11] Trans. Amer. Climatological Assoc., '97.

[12] Jour. Amer. Med. Assoc., Nov. 13, '97.

[13] *Med. News*, March 20,27; *Univ. Med. Mag.*, June, '97.

Of the 5 cases of urinary tuberculosis, 4 were apparently cured. One was temporarily benefited, but developed acute miliary tuberculosis and died. The 1 case of joint tuberculosis was benefited.

Concerning the value of 1-per-cent. solutions of yeast-nucleinic acid administered daily in doses from 60 to 80 minims hypodermically, the author concludes that:

1. In advanced stages of the disease, in which the area of involvement is great, with or without cavities, the best that can be expected from this treatment is temporary improvement. Even this does not occur in all cases.

2. In initial cases, when the area of infection is limited, this treatment may, and often does, not only arrest the progress of the disease, but it acts as a curative agent.

ROENTGEN RAYS.—Chapteloube, Descomps and Roullies[14] referred to the case of a woman, aged 22, suffering from acute and rapidly spreading pulmonary tuberculosis treated by X-rays. There was a cavity at the right apex, the whole right lung was infiltrated, there was generalized extension to the left lung, and the sputum was filled with tubercle bacilli. All medicines were left off, and the X-rays substituted. At the eighth application a crisis occurred, with fall of temperature; this, however, rose again. During the following month the rays were used from behind twice a day, resulting in a marked fibrosis of both lungs, diminution in cough and expectoration, and almost complete disappearance of tubercle bacilli. In thirty sittings the X-rays favorably influenced and almost healed lungs affected with acute tuberculosis.

Night Sweats.

CAMPHORIC ACID.—Camphoric acid is thought by Ralph Stockman[15] to act more powerfully than either atropine or agaricin in 15-grain doses. The tendency to excessive sweating seems to disappear. It is good also in non-tuberculous cases, although it has been stated that its usefulness is confined to the sweating of phthisis. The best plan is to give 30 grains at night two or three hours before the sweating begins, or in two doses at short intervals, in powder, capsules, or cachets; the alcoholic solution is very bitter. Its action is usually not very prolonged. According to H. A. Hare, of Philadelphia,[16] camphoric acid controls the sweats of tuberculosis in the great majority of cases, and does not produce any disagreeable symptoms, such as are usually caused by atropine or other powerful antisudorifics. No remedy has, in his opinion, so universally succeeded.

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[14] *Arch. d'Electricite Med.*, May 5, '97.

[15] *Edinburgh Med. Jour.*, Jan., '97.

[16] *Therap. Gaz.*, March, '97.

Twenty grains are usually sufficient to control the sweat if given early enough to be absorbed before the time of the sweat is reached. Camphoric acid may be given in cachets, dissolved in whisky or brandy, or placed in dry powder on the tongue, and washed down with a little water or milk.

Climatic Treatment.—Von Ziemssen recently stated that during the present century almost every year has brought with it a new remedy. All these have now been discarded, except two: tuberculin and climate. Tuberculin will often cure lupus, and iodoform tuberculosis of the joints; but as yet we have no specific for tuberculosis of the lungs. There only remains the climatic treatment. Fresh air and altitude bring about an excitation of the blood-making organs, but there are contra-indications to high altitudes. A tuberculous patient with fever should never be sent to a height; he will become worse. If the fever is due wholly to the presence of bronchitis or pleurisy, it does not act as a contra-indication. The best results, according to the author, are obtained when the patient is sent to a place near his own home, for a long journey is always depressing, and the comfort of seeing friends, especially to a sick man, is very great. The stage of the disease must be taken into consideration in deciding this matter. If the case is much advanced the patient should be kept as near home as possible.

Volland[17] introduces a timely warning when he says that now that it is taught in the German schools that tuberculosis can be cured by change of air and overfeeding, the greater number of consumptives will be treated by overfeeding when change of air is not available. The unfortunates will have double the amount of food required by a healthy man thrust into their alimentary canal. The disease must first undergo diminished activity before the appetite can return and an increased amount of nourishment be borne. Tuberculosis is not to be driven back by forced feeding. Rest is most important during activity of the disease. Instead of losing appetite by rest in bed, patients in Davos acquire a much improved appetite. In windy weather patients should remain indoors.

According to Vivant,[18] the Mediterranean resorts offer the advantage over the mountain that, with a superior solar radiation, they are less cold, permitting the patient to live in the open air continually in light, thin clothes, giving the air and light the best chance to exert their favorable therapeutic action.

The Riviera is losing ground as a resort for consumptives in the minds of those physicians who seek only to benefit their patients. The sun is hot and the shade is cold, constituting a dangerous contrast for weakened organisms. The "Mistral" of March and April equals the Roentgen rays in penetrating power. Algeria is far superior, and so is the southwest coast of France—Arcachon for instance.

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[17] *Therap. Monat.*, H. 6, June, '97.

[18] *New York Medical Record*, Sept. 11.

MALARIAL HAEMATURIA.*

Treatment.

The *Therapeutic Gazette*, in a review of "The American Text-book of Applied Therapeutics," does not coincide with Dr. Dawson, who recommends quinine in malarial hæmaturia, and the editorial writer is sustained by Dr. Tyson. In an article on the same subject J. W. Meek[1] reminds his readers of the fact that in the *Therapeutic Gazette* for July, 1892, Dr. H. A. Hare had made an effort to collect the experience of medical men who had had to deal personally with this disease, and that, in reply to his inquiries, received the following information from physicians practising in Texas, Mississippi, Georgia, and Alabama: Nineteen physicians, whom he classed as "inexperienced," regarded quinine as "useful" in this disease; but twenty-eight—"experienced"—regarded it "harmful." This is a decided majority of "experienced" clinicians against its utility. Dr. Meek suggests that those classified as inexperienced had doubtless based their opinion upon the teachings of text-books, and that experience with the malady changes the views of a large majority.

The views of Italian physicians are particularly valuable in this connection. Their great experience, owing to the numerous malarial districts of their country, added to their innate acumen, enables them to advance an authoritive opinion on the subject.

Baccelli[2] attributes hæmoglobinuria of malaria, not to the hæmoparasite, but to its toxins. Quinine may bring it on even in moderate doses. He recognizes four classes: (1) Pernicious malaria with hæmoglobinuria cured by quinine; (2) mild attacks of malaria accompanied by hæmoglobinuria only when quinine is given; (3) hæmoglobinuria coming on in persons who have had malaria some time ago, and not associated with quinine; (4) hæmoglobinuria produced by small doses of quinine in persons who have had malaria previously. He advises continuing the quinine in spite of the hæmoglobinuria, if the malarial attack require it. He also recommends persulphate of iron and inhalations of oxygen.

More to the point are the views of Bastianelli,[3] who regards it as practically proved that hæmoglobinuria occurs only in infections with the æstivo-autumnal parasite. An interesting observation is that hæmoglobinuria following quinine is extremely rare in Italy, no case having ever been reported from the Campagna. The frequency with which these cases occur increases as one passes southward. Hæmoglobinuria due to quinine never occurs, excepting in patients who are suffering or who have recently suffered from malarial fever.

The hæmoglobinuric attack is produced every time quinine is administered, whether it be given while the malarial attack is in progress (Tomaselli) or whether it be given when the malarial infection has run its course (Murri). Extremely small doses are capable of bringing on an attack. Quinine hæmoglobinuria has been seen in patients who have already suffered from spontaneous hæmoglobinuria (Murri). The preceding malaria creates the fundamental disposition, the existing malaria the accidental disposition, and the quinine the provocative agent.

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* *Monthly Cyclopædia of Practical Medicine.*

[1] *Therap. Gaz.*, May 15, '97.

[2] *Policlin.*, Jan. 15, '97.

[3] Le Emoglobinuria da Malaria, secondo i recenti Studi; Annali di Medicina, Anno ii, Fasc. xi, from an exeellent review in the *Amer. Jour. Med. Sciences*, by Dr. Thayer.

Quinine hæmoglobinuria is divided into two forms:

1. That occurring during the paroxysm—paroxysmal quinine hæmoglobinuria.
2. Postmalarial quinine hæmoglobinuria.

In these varieties quinine, through a very considerable length of time, will produce an hæmoglobinuria whenever administered. There are, however, instances where the hæmoglobinuria due to the taking of quinine occurs only now and then during the paroxysm. These cases are rare.

As regards treatment, Bastianelli argues that the course to be pursued depends upon the blood examination. If hæmoglobinuria occurs during a malarial paroxysm and parasites are found in the blood, quinine should always be given. If, however, no parasites are found, either as a result of previous administration of quinine or on account of the spontaneous disappearance of the organisms, we may remember that the administration of quinine will have no effect upon this attack and that, for the time being, certainly another attack is not to be expected. In these cases Bastianelli considers quinine as contra-indicated owing to the possibility that the paroxysm may have been due to its previous administration.

If in an attack occurring in the middle of an ordinary malarial paroxysm there arises doubt as to its origin from quinine, it is well to abstain from the further administration of the remedy, for the quinine already given is usually sufficient to hinder the development of new febrile paroxysms. But, if, in an hæmoglobinuric attack which has come on after the giving of quinine, the parasites are still found in the blood, one is justified, despite the danger, in insisting upon the specific treatment; if there be doubt as to the origin from quinine, we may be sure what the result will be if we allow the parasites to go on developing, and it is, therefore, safer to interfere.

Dr. Meek, who, as already stated, objects, with other American authorities, to the use of quinine, recommends the following treatment: 1. Sodium hyposulphite in drachm doses every two hours until the patient is thoroughly purged; continued in smaller doses until the system is saturated with it. This is a stimulant to the hepatic secretion, causing, in large doses, an abundant biliary secretion; and is also a valuable intestinal antiseptic. He believes that free sulphurous acid is disengaged in the blood, and that this agent is an antizymotic to such an extent that it destroys the micro-organisms that are the real cause of the disease, and thus arrests the process of corpuscular disintegration. 2. Morphine and atropine hypodermically, sufficient to quiet the stomach; and blisters over the epigastrium, if necessary. 3. An abundance of water to wash out the coagula that must necessarily accumulate in the urinary tubules after a hæmorrhage. Hot water or hot lemonade is frequently better borne by the stomach than cold. Cupping over the loins is also to be recommended. 4. A mild diet; fresh butter-milk is usually well borne, and also acts as a mild diuretic. 5. The patient should remain in a strictly recumbent position.

Malarial Retinal Haemorrhage.

Closely associated with malarial hæmaturia, and capable, perhaps, of affording some light upon the latter, is retinal hæmorrhage. It will be remembered that last year a French army-surgeon, Dr. Bassères,[1] noted, among soldiers of the Madagascar expedition, twelve cases of this condition, in all of which the cause was undoubtedly malaria, the author believing himself justified in excluding albuminuria, cardiac diseases, and other conditions as etiological factors. The hæmorrhages occurred suddenly, without painful phenomena, either at the height of the attack or in the subsequent period of anæmia or cachexia; and in most of the patients the spleen was much enlarged. The site of the hæmorrhage was, in the majority of the cases, close to the disc, the macula being also affected in some cases. In five out of the twelve cases the lesion was unilateral, and there was usually more than one patch. The blood was absorbed rather rapidly, and, in the majority of the cases, great improvement in vision occurred simultaneously. The author attributed these hæmorrhages to parasitic thrombi, though the blood may have escaped through the wall.

SOMATOSE.—Richard Drews, of Hamburg (*Centralbl. f. Inn. Med.*, January 22, 1898), again returns to the subject of the action of somatose upon the lactating mammary gland. His more recent investigations in 75 cases have confirmed his views, based on 25 previous cases. In addition, the author has received reports from others of 45 cases. Somatose has no action upon cases in which the mammary gland is deficient or incapable of secreting. It is contra-indicated also in diseases such as tuberculosis, in which suckling should be avoided. The administration of somatose in suitable cases produced in a few days an abundant secretion of milk. In nearly all the cases remedies and measures supposed to act as galactogogues had been used without effect. In nearly all cases of deficient mammary secretion the patients complained of headache, pains in the back and in the breasts, loss of appetite, etc. When the somatose restored the secretion, these pains disappeared. When the deficient secretion was due to febrile processes the author always waited a few days before giving somatose, and then a prompt result was obtained. One teaspoonful, consisting of 12 to 16 g., was given three times a day in milk, cocoa, etc. Recently the author has used iron somatose in anæmic states, also with good results. The use of somatose was mostly begun early, and in cases where prematurely born infants could not be suckled owing to a deficiency of milk, it was given during the last few months of pregnancy. These results have also been confirmed by other observers. The author would explain the effects of somatose not by any improvement in the general condition, but by a direct stimulating action on the gland tissue itself.

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[1] *Arch. d'Oph.*, June, '96.

PROGRESS OF MEDICINE.

A REVIEW OF THE RECENT LITERATURE OF MALARIA.

The following review of the recent literature of malaria is taken from the Sajous *Monthly Cyclopædia of Practical Medicine.*

Transmission.

Welch[1] states that at the present time there are only two theories as to the mode of transmission of malarial infection which are worthy of consideration—namely, that it occurs aërially or by inoculation through the agency of suctorial insects. Laveran[2] argues that if the transmission of malaria is aërial only, there are certain localities close to sources of malaria the freedom of which from infection cannot be explained. Transmission by drinking-water he considers as more probable and he mentions the fact that malarious countries have been traversed with impunity by drinking only boiled water, while villages have witnessed the disappearance of fever as the result of a supply of pure water. He quotes the experiments of Marino, Leri, and Baccelli, however, to show that the theory of water-borne malaria is not altogether tenable.

According to Rupert Norton,[3] up to now the malarial parasite has not been discovered outside of the human body. All attempts to grow it on artificial media have failed, and its presence in water supposed to be malarial is not established. He refers to Celli and Marino, who have cited instances in which water from the Pontine marshes, notoriously malarious, had been drunk without causing any symptoms of the disease. Many cases, he thinks, especially those of a prolonged type, may be due to some autointoxication from the intestine.

Returning to Dr. Welch's remark, that the agency of suctorial insects was at present regarded as one mode of transmission, reference may be made to an anonymous writer[4] who had noticed a cottage perched upon the top of an ancient mammoth tombstone on the Appian Way near Rome. In this cottage dwelt an Italian peasant with his wife and little ones, who required the services of a ladder nearly twenty feet in length to reach their melancholy dwelling, located in that situation in virtue of a belief in those countries that persons dwelling in malarious regions are less likely to take malarial fever if they protect themselves from the bites of mosquitoes.

Two years ago Manson[5] produced in the human subject attacks of typical malaria by the inbibition of water inoculated from the bodies of mosquitoes which had bitten persons suffering at the time from malarial fever. Laveran[6] states that he has long thought that malaria was transmitted through the agency of the mosquito. Draining the soil causes mosquitoes to disappear, while the prevailing idea in Europe, that retiring with the window open or going out at certain hours in certain regions is dangerous, may be ascribed to the fact that these insects enter the rooms or are more active at night. He believes that they become contaminated by sucking the blood, and that once within the host the hæmatozoön undergoes a series of transformations, which enables it, on the death of the mosquito, to resist destructive agencies, and thus reach the human being, either by water or air.

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[1] *Johns Hopkins Hosp. Bull.*, March, '97.

[2] *Presse Médicale*, Jan. 20, '97.

[3] *Johns Hopkins Hosp. Bull.*, March,''97.

[4] *Modern Med. and Bac. Review*, April, '97.

[5] *British Med. Journal*, March, '96.

Surgeon-Major Ronald Ross[7] also agrees with Manson in the belief that the mosquito acts as an alternate host, each species of parasite requiring for its propagation a special species of mosquito. If the latter be absent in a locality, though many other mosquitoes may be present, the parasite cannot exist there.

Dr. Bignami[8] conducted a series of experiments tending to show that mosquitoes are not transported by the wind to the extent generally supposed. The insects avoid being carried off by strong winds by hiding in thick brush, grass, and trees. It is also nocturnal in its habits, always flies near the ground, especially around pools, all features fully fitted to thoroughly associate it with malarial agencies. It deposits its eggs in water or in damp places; from the eggs are hatched larvæ, which, very voracious, devour everything they encounter, among other things the bodies of the dead mosquitoes and the envelopes from which they have emerged. They then pass into the state of nymphæ, from which emerge the young mosquitoes. During this long period of life in damp soil or in water, and especially in the state of larvæ, they impregnate themselves with malarial germs. Only the female mosquito, however, attacks man.

These views are sustained by Ronald Ross,[9] whose experiments seem to confirm the views of Manson, that the flagella of the hæmatozoön are flagellated spores, intended for the continuance of the life of the parasite within some suctorial animal, and the flagella arise from spheres, which, in turn, arise from the crescents.

Pathology.

Very interesting in this connection, and by far the most valuable work of the year, was a study of the process of fertilization in the malarial parasite. At the meeting of the British Association last August, W. G. MacCallum, of Baltimore, described observations made upon the malarial parasites of birds. His co-worker, Opie, had noticed two distinct adult forms of the halteridium of Labbé: one hyaline, non-staining form, and one granular, and taking on a comparatively dark stain with methylene-blue. He also believed that the hyaline form became flagellate while the other did not. MacCallum confirmed these observations and observed that the hyaline forms alone became flagellate, while the granular forms were extruded from the corpuscles and lay quietly as spheres among the red cells in which they had previously been contained.

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[6] *Presse Médicale*, Jan., '97.

[7] *British Med. Journal*, Jan. 30, '97.

[8] *Modern Med. and Bac. Review*, April, '97.

[9] *British Med. Journal*, Jan. 30, '97.

In a more recent paper[10] MacCallum reviews the results of his labors as follows:

"Frequently in slides of the blood of infected crows there appear, after standing from twenty to thirty minutes, elongated motile forms such as were described by Danilewsky as vermiculi in his 'Parasitologie Comparée du Sang; and in order to trace their origin it is necessary to observe closely the changes in the other forms seen in the blood. Only the mature forms of the organism are seen to undergo any changes in the fresh slide of blood, the half-grown and younger forms remaining unchanged for a long time. The mature forms become rounded off, and are extruded from the corpuscle, which remains as a shadow lying in the plasma.

"Both in the fresh and in the stained specimens of blood there can be seen differences which sharply distinguish two forms of the organisms. The forms are identical in outline, but the protoplasm of one is granular and apaque as compared with the clear hyaline protoplasm of the other. This distinction is well brought out in the stained specimen, in which the hyaline form remains almost entirely unstained, while the other takes on a well-marked blue stain with methylene-blue. Of these it can be determined that the hyaline forms alone become flagellated.

"These two forms, then, become extruded alike from the corpuscle and lie free in the plasma, but generally only a very short time elapses before the hyaline forms become flagellated, according to the process so often and so accurately described by workers on malaria. The granular forms lie quiet beside the nuclei and shadows of the red blood-corpuscles that lately contained them, but are soon seen to be approached by the flagella, which, having torn themselves away from the hyaline organism from whose protoplasm they were formed, struggle about among the corpuscles. These flagella, which so concentrate their protoplasm as to form a head, swarm about the granular spheres, and one of them plunges its head into the sphere and finally wriggles its whole body into that organism. Immediately on the entrance of this flagellum it seems to become impossible that another should enter, for they may be watched circling about, vainly beating their heads against the organism. The flagellum which has entered continues its activity for a few moments and the pigment of the organism is violently churned up. Soon it becomes quiet again, and remains so for from fifteen to twenty minutes, when a conical process begins to appear at one side of the organism, the pigment collecting mainly to the opposite side. This process grows larger and the pigment becomes more and more condensed, until finally we have a fusiform organism with a small spherical appendage crowded with pigment at one end. The other end is hyaline, and the pigment-granules which are not crowded into the small appendage are distributed superficially over the posterior part of the body. This spindle-shaped organism moves forward with a gliding motion, sometimes turning at the same time on its long axis, sometimes going through amœboid contortions. Red corpuscles lying in its path are either punctured by the hyaline anterior end, so that the hæmoglobin is enabled to escape into the plasma, or passed over and dragged along by the adhering posterior extremity.

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[10] *Lancet*, Nov. 13, '97.

In an intense infection a great destruction of corpuscles occurs; thus in a fresh slide after standing some time even leucocytes may fall victims to the destructive force of these organisms, which have been seen to dash through them, scattering the granules into the plasma. As to the ultimate fate and true significance of these forms nothing definite can as yet be stated. In the slide they keep in motion for a long time, but finally quiet down and disintegrate. The idea suggests itself from their great power of penetration that they may be the resistant forms that escape from the body during life into the external world. The whole process described above seems to be a sexual process analogous to the sexual process seen in the lower animals and plants which occurs under unfavorable conditions and results in the formation of a resistant 'spore.'

"Recently I have examined the blood of a woman suffering from an infection with the æstivo-autumnal type of organism in which a great number of crescents were to be seen. These, in the freshly-made slide of blood, with very few exceptions, retained their crescentic shape for only a few minutes (this activity in the change of form varies greatly in specimens of blood from different patients). They soon drew themselves up, thus straightening out the curves of the crescent, while shortening themselves into the well-known ovoid form. After the lapse of from ten to twenty minutes most of them were quite round and extracorpuscular, the 'bib' lying beside them as a delicate circle or 'shadow of the red corpuscle.' After from twenty to twenty-five minutes certain of the spherical forms became flagellated; others, and especially those in which the pigment formed a definite ring and was not diffused throughout the organisms, remaining quiet and did not become flagellated. The flagella broke from the flagellated forms and struggled about among the corpuscles, finally approaching the quiet spherical forms. One of them entered, agitating the pigment greatly, sometimes spinning the ring about; the remainder were unable to enter, but swarmed about, beating their heads against the wall of the organism. This occurred after from thirty-five to forty-five minutes. After the entrance of the flagellum the organism again became quiet and rather swelled; but, although in the two instances in which this process was traced the fertilized form was watched for a long time, no form analogous to the vermiculus was seen."

Diagnosis.

William Osler[11] states that north of Mason and Dixon's line physicians are prone to diagnose malaria for other diseases; south of the line they are more prone to diagnose other diseases for malaria; in both regions it is a source of greater errors in vital statistics than any other affection.

Referring to Osler's remark, J. F. Jenkins[12] observes there are many localities in his state (Michigan) as well as other states north of Mason and Dixon's line, where malarial fever still prevails, especially during the autumnal months, and that in these sections it is frequently found a difficult question to determine whether the patient has malarial fever or typhoid fever. Sporadic cases occurring in country districts and very generally in villages are not infrequently diagnosed malarial fever, while the deaths reported to local boards of health under the name of malarial fever are, he thinks, usually due to typhoid fever.

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[11] *Med. News*, March 6, '97.

[12] *Med. Record*, Oct. 30, '97.

An interesting diagnostic point noted by Dr. Jenkins is that in malarial fever the pulse-rate will not be very much increased by taking the patient suddenly from bed and placing him in the upright position, while in the incipient stage of enteric fever the pulse-rate is greatly increased by such a change of position. In the early stage of typhoid fever this alteration of position will frequently assist in determining the nature of the fever.

Bedford Brown,[13] of Alexandria, Virginia, also refers to a type of autumnal fever that appears annually between the 10th and 15th of August in Virginia, and continues until hard frost has set in, when it ceases as suddenly as it began. Some of the attacks present symptoms analogous to typhoid fever. The temperature-curve of this prolonged remittent type and that of typhoid fever are almost identical, while many of the prodromal symptoms are similar. There are, however, no iliac gurgling, no rose spots; no tympanites, but rather retraction of the abdomen; and no intestinal hæmorrhage. The only test is the recognition of the malarial parasite.

William Osler[14] states that a widened experience has only served to strengthen the conviction that, in the practical diagnosis of the infectious diseases, the discovery of the hæmatozoa of malaria by Laveran takes rank with the finding of the tuberculosis bacillus by Koch. The irregular types of malarial fever are remittent fevers, which simulate typhoid of certain pernicious types with special localization. The parasite is very scanty at first in the peripheral blood, and many slides may need to be examined before it is seen; in the end, however, the characteristic crescents are sure to be met with. Quinine checks this form in two to four days, if properly administered. Malaria with typhoid features is not uncommon.

In the course of a study of the malarial fevers in the District of Columbia, Dr. William B. French,[15] of Washington, examined one hundred and five cases of known and suspected infection, the ages of the patients ranging from one year to eighty-seven years, and in ninety-four the organism of malaria was found. In six cases pigmented leucocytes only and free pigment were observed, while in five cases the result was negative. A number of interesting conditions were seen in the blood at times. Phagocytosis was not uncommon. A few segmenting forms were met with, but more often their pigment clumps were found free or in the leucocytes. In a few instances two or three and in one case four ring-like forms were seen in one red cell. In all cases the blood was drawn from the lobe of the ear and used in its fresh state. Especially interesting is the fact that the author found two cases of pulmonary tuberculosis complicated by the presence of the malarial organism: the first of the kind he had met. Their blood showed crescents and free pigment-blocks in one and ring-like bodies in the other. Tubercle bacilli were found in the sputum of each.

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[13] *Charlotte Med. Journal*, Jan. '97.

[14] *Med. News*, March 6, '97.

[15] *N. Y. Med. Journal*, April 24, '97.

A. R. Edwards[16] observed that the parasite in tropical types was smaller, while in the tertian they were as large or even larger than the red corpuscles of the blood. In the pernicious types blood-corpuscles are shrunken, become darker, or completely decolorized, and transparent. Crescents are only found in the æstivo-autumnal cases. He argues that, while fever is a symptom of malarial infection, it is a conservative process, killing the parasites, phagocytosis being most marked during paroxysms.

Woldert[17] states that the forms of parasite present in the blood during the different stages of tertian, quartan, and æstivo-autumnal malarial fevers can easily be separated from one another by an examination. Quinine probably changes the type of the fever from the quotidian to the tertian by destroying one of the groups of organisms at the time of their segmentation.

Osler[18] observes that simple intermittents are characterized by a paroxysm, developing at the end of forty-eight hours, if a single group of parasites be present; if two groups exist, one of which matures every day, the paroxysms develop at the end of twenty-four hours. The blood shows hæmatozoa in all stages, and quinine causes their rapid disappearance.

Treatment.

E. C. Register[19] states that quinine is very imperfectly absorbed when given by the stomach and when the patient has a temperature of over 102°. In case of continued malarial fever, if distinct and well-marked intermissions of the fever are produced artificially by the use of antipyrin, antifebrin, and phenacetin, the crescentic and ring-shaped bodies will disappear after the administration of quinine as quickly as the spherical bodies that are found in an ordinary case of intermittent fever.

As is well-known, the blood-serum of animals naturally immune has no influence upon the course of malaria. A. Celli and F. S. Santori[20] experimented with serum of animals exposed to malarial infection: buffaloes, horses, etc., kept in the most malarial districts around Rome. Six persons treated with serum were subsequently inoculated with malarial blood; others were selected who were obliged to live in malarial districts. The first received 10 cubic centimeters subcutaneously, varying from 10 to 4 days. Three of those inoculated with blood from a quartan patient passed the longest incubation period observed without manifestations of the toxæmia. In the other three the blood of a case of marked æstivo-autumnal fever was injected, and simultaneously into a non-protected control subject. In the former, fever appeared 25 days after inoculation.

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[16] *Chicago Med. Record*, Aug., '97.

[17] *Med. News*, Feb. 13, '97.

[18] *Med. News*, March 6, '97.

[19] *Atlanta Med. and Surg. Journal*, Sept., '97.

[20] *Centralb. f. Bakt., Parasit., u. Infr.*, Jan. 20, '97.

In the latter, fever appeared in the control subject in 43 hours; in a man treated with buffalo serum in 30 hours; in one treated with horse-serum in six days; and in one treated with ox serum in 17 days. The conclusion was reached, therefore, that preventive treatment with the serum of naturally immune animals exposed to malarial infection prolongs the incubation period of experimental malarial fever in man.

Cardamatis, of Athens,[21] states that methylene-blue should only be used in simple intermittent fevers, and that it would be dangerous to substitute it for quinine in the treatment of continued fevers and in grave cases. It is only indicated when, for some cause, the use of quinine is contra-indicated, especially when, even in small doses, it produces hæmoglobinuria. The daily dose in the adult is from 9 to 15 grains; sometimes it produces a slight cystitis, that ceases when the drug is discontinued.

Prophylaxis.

Bedford Brown,[22] alluding to the form described by him, insists upon the necessity of drinking only distilled or sterilized water or water obtained from the deep artesian wells. Quinine is of little use unless given in large doses (not in pill form), 50 grains being given within the thirty-six hours preceding a chill, in 10-grain doses, in the intermittent type. In severe attacks he adds 5 grains of phenacetin and 3 of acetanilid every two hours, and regards cold sponging as an excellent adjuvant to the quinine. In the prolonged form, 20 grains in quinine in three doses per day are sufficient. Nitroglycerin combined with quinine he found of great value in the pernicious variety.

EUCHININ IN MALARIA.

Dr. St. George Gray, writing from St. Lucia, West Indies, states (*Brit. Med. Jour.*, February 26) that he has found euchinin highly satisfactory in the treatment of suitable cases of malarial fevers. He has found, however, that it does produce cinchonism, notwithstanding published statements to the contrary, for he has seen it cause tinnitus aurium, deafness, and derangement of vision and sensation in an even more marked degree than the same quantity of quinine itself.

Contrary to the statement of Professor von Noorden, that 15 grains of quinine are equal to 25 or 30 grains of euchinin, Dr. Gray finds that euchinin is a more powerful antipyretic than quinine, and that, in malarial fevers at least, 10 to 15 grains of euchinin are as efficacious as 20 to 25 or 30 grains of quinine sulphate, and that it nearly always, in doses of 12 to 15 grains, causes buzzing in the ears, if not other symptoms of cinchonism. The largest dose that he has given has been 15 grains once or twice a day, always commencing with a good purge, which he considers essential in the treatment of all malarial fevers. This is sufficient in most cases, following the treatment with tonics and change of air if possible after the temperature has remained normal for a few days. Dr. Gray summarizes the conclusions reached by him as follows:

1. Euchinin is as effective as quinine in malarial fever.

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[21] *Gazette des Hôp.*, April 15, '97.

[22] *Charlotte Med. Journal*, Jan., '97.

2. It causes cinchonism.

3. It is tasteless, therefore easily administered. This is its great advantage over quinine.

The readiest form of administering euchinin is the simple powder placed dry on the tongue and washed down by a little water. As it is very bulky, some patients prefer it in cachets; but all solutions of euchinin that I have seen are decidedly bitter, presenting no advantage whatever over quinine.

I do not consider cinchonism such a fatal objection as the intensely bitter taste of quinine. My experience of malarial fevers is that quinine and the malarial poison being antidotes to one another, cinchonism is the sign that a sufficient quantity of quinine has been taken to overcome its antagonist, the malarial poison, as mercurialism is the sign that the syphilitic poison is under control.

If euchinin can be proved to be even nearly as effectual as quinine, its tastelessness alone should recommend it to many as a substitute, notwithstanding that it is not altogether free from some of the other objections to quinine.

SUPRARENAL EXTRACT IN DEATH DURING CHLOROFORM NARCOSIS

Dr. Mankowski, a Russian scientist, who has conducted an experimental investigation, reports his observations in a Russian journal: The author has for a long time devoted his studies to determining the physiological action of suprarenal extract along with a number of other inquirers (Izymonowitsch, Gottlieb, Podwissotski), and the general conclusion has been that the extract has a very powerful exciting action on the vital factors, cardiac activity, and respiration. The author's present inquiry was to determine how far the extract could be utilized in cases of death or impending death from chloroform. His experiments consisted in bringing animals into a dying state by chloroform, and then endeavoring to restore life by intravenous injection of suprarenal extract. He claims that the extract does restore life in animals brought into a dying state by long continued action of chloroform. Small doses, for example, 1 to 2 grm. of a 1 per cent. solution of the extract produces an important change in the activity of the heart and respiration.

It is necessary to prepare the solution afresh and sterilize it before use, or to keep it in sealed tubes already prepared. The extract must be injected promptly. as the margin of time, during which it can be useful, is very limited.

In restoration of the apparently dead during chloroform narcosis, the best results were obtained by a combination of the injection of the extract, and the other usual methods, such as massage of the cardiac region, subcutaneous injection of saline solutions, etc.

The fact that the above experiments were carried out in the laboratory of Podwysstsky and Tschingew is a sufficient guarantee of the importance and value of the results reported.

TREATMENT OF CANCER BY INTERSTITIAL INJECTIONS OF ALCOHOL.

The results obtained in a case of cancer of the naso-pharynx by a well-known clinician, Dr. Kuh, of Chicago, and the fact that the correctness of the diagnosis had been sustained by so competent an observer as Dr. Senn, add much weight to the evidence already collated in favor of alcohol as a curative agent.

The search for pathogenic micro-organisms, antitoxins, etc., has so captivated the attention of investigators during the last decade that remedial measures of a more prosaic kind have been relegated to a position well in the rear. Koch's tuberculin set the world aglow with anticipation; it had in its favor the enthusiasm of the hour. Had this agent been an extract of some commonplace variety of a generally known plant, crucial tests innumerable, with classical skepticism as a sponsor, would soon have chilled both discoverer and discovery; or, it might have passed unperceived and finally have found a resting-place where so many honest efforts are buried in dust, on the shelf.

Such has been the fate of alcohol as a remedial agent in the treatment of cancer. Although many years have elapsed since attention was first called to its effects upon neoplastic tissues, no interest has been awakened and it lies practically dormant, awaiting its turn to enter the clinical arena. Are its claims sufficiently valid to merit thorough test by clinicians? Dr. C. E. DeM. Sojous says, in the *Monthly Cyclopædia of Practical Medicine*, that it is safe to state that, if tuberculin had had to its credit but half of the bona fide points already noted in favor of alcohol in the treatment of cancer, it could have withstood the test of time.

Over twenty-five years ago Karl Schwalbe, having obtained satisfactory results from interstitial injections of alcohol in the treatment of benign growths, argued that if alcoholism could give rise to the formation of new connective tissue in the liver and thereby induce atrophy of the parenchyma, including its vascular supply, malignant tumors should yield to the direct action of alcohol in the same manner. Hasse, of Nordhausen, after a careful analysis of the whole question, reached the conclusion that injections of alcohol around the base of the growth would suffice. A zone of new connective tissue would be formed; constriction of the blood-vessels and lymphatics would necessarily follow; and, the afferent and efferent channels being thus partially or entirely closed, the nutrition of the growth would cease, while the same mechanism would serve to close avenues for the passage of metastatic elements. His results verified the correctness of his views, and, of eighteen cases of carcinoma of the breast treated by him, fifteen were cured, the three cases lost being hopelessly advanced when the treatment was instituted. Recently[1] he showed that the method insured radical results by reporting the histories of three cases treated in 1878. Although nearly twenty years had elapsed up to the date of his paper, the persons treated were in perfect health, no recurrence having taken place. A connective-tissue capsule had formed around each growth, causing obliteration of the blood-vessels and contraction of the neoplastic tissues. In other directions, results were also met with tending to sustain the value of the method. Vulliet, of Geneva, used alcohol in advanced cases of uterine cancer and obtained marked relief, which he ascribed to the local ischæmia produced. In our country, J. W. Young,[2] of Bloomfield, Ia., employed alcohol in various varieties of tumor. Rapid reduction of the size of the growths was produced; but he ascertained that, if too much alcohol were injected at one time, sloughing of the growth and general intoxication of the subject would follow. With ordinary caution, however, he was able to avoid these untoward effects by injecting 10 to 20 minims into one side of the tumor, then as much in another place, etc., this being continued until every part of the growth had become infiltrated by the alcohol.

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[1] *Archiv für Pathol. Anat.*, B. 146, Nov. 4, '96.

[2] *Charlotte Medical Journal*, July, '95.

An extremely interesting case has recently been reported, which not only adds considerable evidence to that already adduced, but also furnishes an opportunity for a profitable study of the whole question by deductive reasoning. The case was one of scirrhus of the breast treated by William Yeats.[3] The patient was a widow, aged 58 years, whose left breast was already twice as large as the right and ulcerated at the nipple. On February 20, of a mixture of 40 parts of absolute alcohol and 60 parts of distilled water, 23 syringefuls, each of 20 minims, were injected deeply into the tissues around the tumor, and into the axilla in the neighborhood of the enlarged glands. The injections, averaging from 22 to 25 syringefuls each time, were repeated about every fifth day until May 2. Each sitting occupied about three-fourths of an hour. The injected fluid had a great tendency to flow out again, but the author found that this could be obviated by smearing collodion over the needle-pricks. The patient experienced considerable pain lasting from one-half to one hour. After the second series of injections she declared that the sensations in the breast were altered, the shooting pains were no longer felt, while the itching on the surface of the mamma, which she had complained of, disappeared and never recurred. After the subsidence of the immediate painful effects of all the other injections, the patient felt more comfortable in every way. When the process had been continued for five weeks, the parts round the tumor began to be œdematous, but still the injections were continued into and beyond the œdematous parts. During the sixth week the patient and her nurse stated that they considered that the growth was smaller, and certainly at the beginning of the eighth week (April 11) the whole breast, including the tumor, had diminished in size.

After this date, all the parts, breast and tumor, rapidly shrunk, until in May there was actually nothing left of the mamma to be felt by the hand, and practically nothing left of the tumor, but the nipple and slight thickening under it. There was still œdema in the injected area. The glands in the axilla could not be detected. At this time Mr. Windsor examined the case (May 12) and stated "that whilst the right was a fairly large hanging breast, the other—the left breast—had practically disappeared, the nipple only remaining; that he did not find any thickening under the pectoralis nor enlarged glands in the axilla." After these seventeen injections, a complete structural change to all appearance having taken place, it was intended to continue the injections at longer intervals for a considerable time, but, unfortunately, the patient became ill otherwise. She lost her appetite, became slightly jaundiced, and on examining her on May 16 it was found she was suffering from cancer of the liver with ascites. This being the case, nothing further was done; the patient rapidly grew worse, and died on June 10.

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[3] *British Medical Journal*, Sept. 25, '97.

At the autopsy the mamma was found replaced by a dense, fibrous-looking mass with several processes extending into the surrounding fat and firmly connected with the subjacent pectoral muscles. The skin was rough, superficially ulcerated at one place, and adherent to the subjacent tissue around the nipple. The nipple was depressed, but not considerably retracted.

The first query that suggests itself brings into question the nature of the tumor. Hasse's cases were treated twenty years ago, when physicians were not habituated, as they are now, to the use of the microscope. Then, as now, enthusiasm sometimes warped the very best intentions. Vulliet's cases, however, were undoubtedly cancerous, their course demonstrating the correctness of the diagnosis. In Yeats's case examination of the mammary and hepatic tissues by Professor Delépine did not establish beyond doubt the identity of the neoplasm, as may be seen in the following report:

"The cutis vera, subcutaneous tissue, and fat surrounding the mamma show distinct signs of proliferative inflammation of the connective-tissue elements and little infiltration with leucocytes.

"The tumor itself presents, in most places, the appearance of an atrophied scirrhous carcinoma—that is, the epithelial cells are small, they do not fill the alveoli containing them, and the stroma is, generally speaking, abundant, and shows signs of great proliferative activity; the peri-acinous connective tissue shows, in a marked degree, the metamorphosis described as elastic degeneration. These signs of atrophy of epithelial elements and increase of connective-tissue stroma are not absolutely general, and in some parts the tumor still presents the appearances of a typical scirrhous carcinoma.

"The section of liver shows several confluent nodules of scirrhous carcinoma; very cellular, epithelial cells of the same type as those found in the mammary tumor; extensive tracts of necrosis; biliary pigmentation, and capsular hepatitis.

"In conclusion, I would suggest that the mammary tumor shows signs of marked irritation of the connective-tissue elements and atrophy of the epithelial cells, and that this may be fairly attributed in part to the action of the alcoholic injections, the similarity existing between the hepatic secondary growth and the primary mammary tumor throwing a certain amount of doubt over this conclusion."

Still, many points are adduced in the history of the case in favor of the view that a malignant growth was really present. Indeed, if to these are added the facies of the patient, the glandular involvement, the character of the ulceration, and the secondary involvement of the liver, another diagnosis is hardly warranted. But another factor must be introduced. Scirrhus may, as is well known, undergo spontaneous atrophy. Might a coincidence not have played an important rôle in the result reached? T. Carter Booth,[4] of Manchester, contributes a case showing to what degree scirrhus may spontaneously contract without apparent cause:

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[4] *British Medical Journal*, Dec. 25, '97.

The patient, a lady aged 69 years, when first seen, eight years before, presented the appearance of 60 years, with all her teeth, and in good health. The breasts were still large, but fleshy: the right normal, the left containing a mass the size of a walnut, not painful or but slightly so, except on pressure. The nipple was normal. No large glands were to be felt in the axilla. There was a vague recollection of a slight injury, but no other suspicious circumstance could be elicited except that, shortly before, her son had died of cancer of the tongue, two and three-fourths years after a supposed complete removal of the diseased organ. Moreover, both mother and son were of the type known to be prone to malignant neoplasms. The diagnosis of scirrhus was confirmed by Mr. G. A. Wright, who advised removal without delay. Operation was declined, and a speedy spread of the mischief anticipated. Whether, however, in spite of, or on account of, non-interference, no further change occurred except gradual contraction of the breast and tumor, finally reaching the state observed by Dr. Yeats, including the retracted nipple. The atrophic process had taken six years. Only after this, during the last year of her life, at the age of 76 years, did cachexia supervene, supplemented by marked emaciation, muscular weakness, anorexia, extreme sensitiveness to cold, and dryness of the skin (suggestive of diabetes: a suspicion not confirmed), but without enlargement of glands or evidence of deposit in the internal organs. This only occurred two months before death. She took to bed, and there appeared in the right loin, higher than the usual site of "decubitus," a hard mass the size of the palm, involving the skin, and gradually causing it to ulcerate into a foul, discharging sore. The breast, however, was now dry and contracted, and the glands were free. The new growth—situated, as it was, on the right side, quite apart from the original deposit—could be a terminal, but not a secondary, manifestation of the malignant habit of the patient. The case was, Dr. Booth thought, an undoubted atrophic scirrhus that had undergone changes similar to those described by Dr. Yeats, but with the difference that the spontaneous process required six years, whereas the injections of alcohol in Dr. Yeats's case had caused reduction in about ten weeks.

Granting that both cases were cancerous, deductive reasoning can but suggest that if, in ten weeks, the atrophic process induced corresponded to that effected by Nature's own resources in six years, the possibility of coincidence must be set aside. But may spontaneous atrophy not occur in less than six years? To justly interpret the case in point the question must be transformed into the following: Has ever a cancerous breast such as that described by Dr. Yeats become spontaneously atrophied in ten weeks? A negative answer need hardly be formulated, and the case certainly warrants the conclusion that as an agent capable of causing contraction of a malignant neoplasm alcohol is unequaled by any drug.

Going a step farther, we are brought to a case reported by Edwin J. Kuh,[5] of Chicago, the diagnosis of which was confirmed clinically by Senn, and furthermore by a microscopical examination which allows of no reasonable doubt. The case was one of primary cancer of the naso-pharynx in which the injection of unfiltered erysipelas-prodigiosus toxins had failed. In view of the inevitable fatal outcome, injections of alcohol were begun on October 14, 1896, with 3 minims of absolute alcohol, the dose being rapidly increased to 30 minims. The reduction in the size began after the seventh injection, and after the eleventh but few remnants of tne growth remained. After a dozen more injections the needle would not penertate into the tissues capable of retaining the alcohol, and after a few additional attempts, at intervals of a week or longer, they were discontinued. In February, 1897, the naso-pharynx was found, both by inspection and palpation, to be entirely free.

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[5] *Medical Record*, April 17, '97.

This case, added to the others described, establishes alcohol on a basis seldom equaled by any agent proposed. In order to obtain a successful result, however, the treatment must be carefully conducted.

In the cases reported as cured by him, Hasse injected a mixture of 30 parts of absolute alcohol to 70 parts of water twice a week around the tumor, as well as into any infiltrated glands. The quantity injected varied according to the size of the neoplasm, and sometimes reached 20 Pravaz syringefuls. The only inconvenience observed was pain and, occasionally, slight intoxication. In order to avoid making the injection into a blood-vessel, Hasse inserted the syringe-needle deep into the tissues, then unfastened it, leaving the cannula in place. He then waited a moment; if the blood did not issue from the cannula he readapted the syringe and made the injection; but, if blood did flow out, he removed the needle and made another puncture elsewhere. Under the influence of these injections the tumor diminished in size and soon became less painful. The treatment should be continued for some time after apparent cure, at intervals more and more prolonged.

Pain seems to be the only untoward effect of the procedure. Local hypodermic injections of water are known to cause anæsthesia. This or some other local anæsthetics might be employed to obviate the only feature that might cause the sufferer to refuse assistance. General anæsthesia might even be resorted to for the first injections in sufficiently robust subjects until the treatment has itself reduced local tenderness.

The remarkable increase of cancer during the last half-century need hardly be emphasized. The nature of the affection sufficiently sustains an earnest plea that alcohol be given the faithful trial it seems to merit.

THE LIFE OF THE POOR IN BOMBAY.

The great difficulties confronting the medical authorities in their efforts to stamp out the bubonic plague in Bombay will be appreciated after reading the following graphic portrayal of the manner of living of the poor of that city, which is published in a recent issue of the London *Lancet.*

The sanitary condition in which vast numbers of the people live is terrible in the extreme. The present epidemic has given opportunities for inspection of premises and of learning something of the inner life of the native poor, such as has been given to only a few to know before. The fearfully crowded houses, the dark, unventilated rooms, the fumes of cooking and burning wood and drains which pervade every building, the hard work, and the miserable diet epitomize some of the chief causes of the imperfect physique and feebleness of constitution which characterizes the great mass of the people. When one sees them in apparent health one ceases to wonder how quickly they succumb to disease. Large numbers of houses are strong, stone-built dwellings of many stories high; comparatively few are of wood. But how small the rooms and in what narrow spaces every convenience for a family has to be provided for. It is almost heresy in India to complain of the use of cow dung, because it is applied to such a variety of purposes. The smearing of floors and passages with it is adopted to provide a smooth surface, but when dry it gives off a highly objectionable dust, and when wet becomes converted into an offensive putrescible mass. The way the women collect this dirt in the street, the manner in which it is messed about in the houses, the utter indifference about the chances of its polluting their food and drink, make the application of this material one of the first reforms which might well be initiated. The little cooking stoves are made of cow dung mixed with clay, some of the fuel used is cow dung dried into cakes, the bed is often the dried cow dung on the floor, and the brass and tin and copper utensils used in cooking are cleansed with the cow dung and earth which makes the ground on which the people tread.

There being no chimneys, all the effluvia of cooking, of persons crowded together, of foul emanations from soiled clothes and dirty habits become mixed and remain almost undiluted in the rooms in which they continually live. The habitations, especially on the ground- and first-floors, are often pitch dark, windows of any kind are frequently absent, and the sole entrance comes from a dark and stinking passage. Vast numbers are of this description. The ground-floor passages have very often an imperfectly covered drain running through them and the privies are often placed in dark and totally unventilated corners.

As there is no water carriage for the excreta—the night-soil being collected in baskets placed beneath the native forms of closets—and as the habits of the natives are so filthy the condition of these places is almost beyond description. Some of them are flushed down with water occasionally, but all of them possess the smell of decomposing ordure. What the condition must have been before the city was provided with a regular water-supply can hardly be imagined, because the wells which remain, although now mostly disused, are in the centers of dwellings and filled with hardly anything better than diluted sewage. If one could judge from the frequent personal ablutions to be seen practised one might imagine that personal cleanliness compensated for all the other forms of filth, but the heads of grown-up people as well as those of the children are frequently seen crowded with vermin, itch is common on all parts of the body, an unpleasant unwashed sort of odor characterizes most of the people and dirty secretion-soaked rags form the partial coverings which most of the poor wear. A very objectionable institution is the "nahani," a sort of sink on the floor in the corner of the room. Its use is ostensibly for washing purposes, but all sorts of filth get into it and it drains into an unventilated and often choked-up soil pipe which opens into the gully below. The gullies between the houses are open drains, sometimes to be found nearly dry with deposits of all sorts of filth and at others running with foul and stinking water to the surface drains on each side of the street.

As for the overcrowding, it would be considered excessive even in decent well-ventilated dwellings, but with houses constructed after the above fashion with 200, 300, 400, and even 500 and 600 persons under one roof, the conditions of life are terrible in the extreme. For from four, five, or six people to live in one small room is very common. Some of the larger rooms have several families. In one large room were counted thirteen different families with their separate cooking stoves and domestic conveniences. The large collection of dirty old clothes, unused pots and pans, boxes and other articles which form the furniture and effects of some of the people, materially reduces the cubic space for each individual, but the absence of any provision for ventilation in such a large proportion of the tenements is one of the most urgent needs for amelioration. Many of the people work very hard, the women perhaps harder than the men. Long hours of simple mechanical and monotonous work for two, three, or four annas a day, result in a condition of almost constant exhaustion. The meager diet of rice and flour, with butter of some sort, vegetables and fruit, perhaps explains the small muscular development and feeble physical powers of the majority of the people. Such is the condition under which hundreds of thousands pass their existence. With but little domestic affection apparently beyond that for their children, with a hard struggle for the bare necessaries of life, with the fatalistic spirit of their religion, it seems almost hopeless to improve their lot. Much, however, could be done to make them live under healthy conditions, and then perhaps the mental and moral improvements would follow.

BINIODIDE OF MERCURY AS A SUBSTITUTE FOR POTASSIUM IODIDE.

Hobday (*Journ. Comp. Path. and Therap.*, December, 1897) says the great objection to the use of potassium iodide in veterinary practice, especially for the larger animals, where full and repeated doses have to be employed, is its expense. About two years ago, in the course of conversation, Professor Edgar, of Dartford, observed that he had been using the biniodide of mercury as a substitute for potassium iodide in the treatment of actinomycosis, and that he found the treatment to be attended with an equal amount of success.

The recipe used consisted of from 2 to 6 gr. of biniodide of mercury dissolved in an ounce of water by the aid of from 5 to 10 or 12 gr. of potassium iodide. Hobday has been able to collect a fair number of instances in which it has been tried successfully on cattle suffering from actinomycosis. In the treatment of chronic elephantiasis and of tumors of the shoulder and elbow, the biniodide has been used in the clinic at the Veterinary College as a substitute for potassium iodide, and an equal amount of success has been obtained, together with the advantage of obtaining the alterative effect of the mercury. Professor Edgar has also tried it successfully in the horse for the dispersal of glandular enlargements, for capped elbows, and for scirrhous cords; he has also found it a valuable agent as an astringent to the lacteal secretion in mares and cows.

Summing up the results, Hobday concludes: (1) That the agent is very much cheaper to use than potassium iodide. (2) That the results which he has been able to collect regarding its value in actinomycosis confirm those which Professor Edgar had already obtained. (3) That the observations which Professor Edgar and himself had been independently making at the same time upon its therapeutic effects as a resolvent, specific and alterative in certain diseases of the horse, appear to demonstrate its value, and to agree in almost every detail. (4) They have each found that, as is frequently the case with potassium iodide, failure to continue with the medicine for a sufficiently long time may cause a relapse, the tumors again enlarging.

EXERCISE TREATMENT IN NERVOUS DISEASES.

Goldscheider (*Deut. Med. Woch.*, 1898, Nos. 4 and 5) more especially refers to tabes dorsalis and some other diseases. He maintains that the ataxia is due to a disturbance of the muscular sense. He first learned to use exercise treatment in v. Leyden's clinic; but this method has been subsequently largely extended by Fraenkel. In the so-called paraplegic stage of tabes slight flexions and extensions, etc., of the limbs may be made when the patient is in bed. Help may be given by lightly supporting the thigh or leg. A chair may be inverted over the foot of the bed, and the patient can then exercise himself in touching the cross bars or by putting the feet in between them.

The movements are first made with the eyes open and afterwards with closed eyes. Ample periods of rest must be allowed so as not to produce fatigue, otherwise an exhaustion lasting over several days may result. The author confirms Fraenkel's opinion that even in these advanced cases improvement may be produced and the patient may even walk again. Some patients do not improve, and sometimes the exercises have to be given up owing to the pains which are apparently induced by them. In less advanced cases various movements may be practised to improve the gait, and the author figures many pieces of apparatus adapted to this end. A chair on four legs with rollers may be useful. The treatment must be persisted in over long periods of time.

The chief point lies in many movements performed without fatigue and with intervals of rest. The author draws attention to the absence of the sense of fatigue. In some patients there is an atony of the muscles, and here electricity and massage must be employed as well. The knee and hip joints may be supported by bandaging. The author then refers to the treatment of intentional tremor by exercises. He looks upon this tremor as closely allied to ataxia, and as capable of improvement by exercises. In chorea some improvement may also be produced, but the exercises should be carried out only once in the day or once in two or three days. The good effects of this treatment in writers' cramp are well recognized. In athetosis also some improvement may be produced by long-continued exercise treatment. In speaking of paresis and muscular atrophies the author draws attention to the value of exercises carried out in a bath, and especially in peripheral neuritis. In neuralgias, etc., exercises, particularly of a passive form, may be useful. In articular pains left after rheumatism, and more especially after contusions, this treatment is valuable. Goldscheider thinks that much more attention should be given to exercise treatment.

FORECASTING THE SEX.

It would appear that from time immemorial the question of the determination of sex before birth has excited the interest and curiosity of mankind. From time to time the most crude answers have been given, but we appear to be no nearer the true solution than was Aristotle. The subject has lately excited an undue amount of attention in the thoughts of the general public and of some members of the medical profession owing to the theory advanced by Dr. Schenk, of Vienna, that the nutrition of the parents influences the sex of the offspring. This is no new theory, for does not Falstaff say to Prince John, of Lancaster: "There's never any of these demure boys come to any proof, for thin drink doth so overcool their blood, and making many fish meals, that they fall into a kind of male green sickness, and then, when they marry, they get wenches?"

Mr. C. T. Fields-Clarke, too, contributes to *The Farmer and Stockbreeder* his views on the regulation of sex in mammals, particularly in horses and cattle. He says that horses and cattle, as a rule, give off a single ovum from the right and left ovary alternately at each menstruation, the sex being determined by the particular ovary from which the ovum emanates, the sex being in no way affected by the male fluid, except as a germinating element. This statement leads him to the hypothesis that one ovum contains male eggs only, and the other female eggs, and he is further convinced that the left ovary generally contains the female ovum and the right ovary the male ovum. The first ovum which escapes into the uterus at the age of puberty is from the right or male ovary, and at each succeeding menstruation the sex of the ovum alternates. The regulation of sex, therefore, is merely a matter of careful observation after the sex of the first fœtus has been determined, for each menstrual period changes the sex alternately. Unfortunately for this extremely simple method of predicting the sex, as is pointed out in the *British Medical Journal*, it does not apply to the human being, even if it be granted that it is approximately true for cattle, for there are cases on record in which children of both sexes have been borne by a mother, one of whose ovaries has been completely removed by a competent operator. If birds are produced on the same lines as mammals, and the generative apparatus throughout the animal kingdom is the least liable to change its type, the hypothesis does not explain the origin of cocks, for in birds, as a general rule, there is but one ovary and one oviduct, that of the left side, the corresponding organs of the right side being rudimentary or absent. All birds therefore should be hens.

THE PREVENTION OF HERNIA AFTER LAPAROTOMY.

Volkovitch (*Vratch*, No. 5, 1898) regards the ordinary methods of incision in abdominal section as the great cause of subsequent weakness of the abdominal walls, and the formation of herniæ. In place of the incision along the linea alba he recommends an incision through either rectus. The wound is closed by a series of sutures at different depths. The first series of interrupted sutures takes in the peritoneum and the inner layer of the rectal sheath. The second series of interrupted sutures unites the remaining layers with the exception of the skin, which is stitched up separately by a continued suture.

In operations on the lateral regions of the abdomen the principle to be observed is to separate the tendino-muscular structures along the course of their fibers, as each layer comes into view, and not to divide the muscular fibers across in the plane of the wound, as is usually done. Taking the lower lateral region for instance, all incisions should have the direction from above downwards and inwards—that is, parallel to the fibers of the external oblique, which are then separated along their course. To ensure sufficient room for the same procedure with the underlying layers it is necessary to make the first incision somewhat longer than usual. The margins of the external oblique muscle are then forcibly drawn apart with retractors, and this separates them from the underlying internal oblique muscle. The latter is then opened up in the same way along its whole length, from the spine or crest of the ilium to the sheath of the rectus. The margins are again drawn apart with retractors, and the transversalis comes into view. As this muscle is continued inwardly as an aponeurosis, the separation of the fibers towards the rectal sheath has to be done with a knife or scissors.

The direction of the last fissure is tranverse, and the peritoneum is divided in the same line. To prevent it from slipping under the tense muscular margins during the course of the operation, it is fixed to the muscles by a few temporary stitches. The wound is closed after the operation by a series of sutures in layers. The first series unites the peritoneum and the transversalis muscles, the second the internal oblique, the third the external oblique; the fourth, unlike the others, is a continued suture, and includes the skin only. In some operations in this region—as, for example, for the removal of the appendix vermiformis, the above method does not give quite enough room. In such cases the author recommends the enlargement of the wound by continuing the last transverse incision through the rectal sheath, and even through the margin of the rectus muscle, and not the addition of a longitudinal incision along the outer margin of the sheath, as recommended by some surgeons.

The Use of Tannoform.—Both the internal and external employment of tannoform is highly praised. In doses of 1-6 to 1-3 grain it has a rapid and favorable action in the enterocolitis of children, and, following the administration of castor oil, it is of equal service in dysentery. Externally, applied as a powder, it is useful as a remedy for hyperidrosis, and also for chronic ulcer, in which it relieves the pain and energetically stimulates the granulations.

For Contusions.—Wash the injured part, and then paint twice daily with menthol in collodin (1-8 or 1-4). Pain will be relieved, and the resulting constriction of the vessels diminishes the discoloration and swelling. This treatment should not be used in case of contusion of a joint.

KRYOFINE AS AN ANTIPYRETIC AND ANALGESIC.

By J. D. ALBRIGHT, M.D., Pottsville, Pa.

The great difference of opinion that exists in the minds of the medical profession as far as relates to the value of the more recent antipyretics and analgesics is deemed sufficient excuse for the addition of this paper to the large number that have already been written on the subject, and were it not for the fact that the writer believes to have found the ideal preparation of this class, he would refrain from its promulgation in this wise.

The drug to which I wish to make special reference in this paper is Kryofine, prepared in Switzerland, and introduced into this country by Bischoff & Co., of N. Y. Kryofine is a phenetidin derivative, and differs from all other somewhat similar compounds in the fact that instead of using lactice acid or acetic acid in its preparation, the manufacturers employ methylglycolic acid. It is very closely allied to phenacetine, but possesses none of the disadvantages of the latter, and yet intensifies its advantages. Its antipyretic action is more prompt and continues for a longer period, and subsequent rises in temperature are not attended by a chill. As a pain reliever its action is exceedingly prompt and efficient. which shows that it is rapidly absorbed by the system. Experimental tests have demonstrated that it is eliminated from the body in six hours, while its presence can be detected in the urine after fifteen minutes. No appreciable action can be noticed on diuresis, not even after large and continued doses. Its action on the pulse is especially valuable—it becomes stronger, fuller and more regular. The normal temperature is not affected by full doses and the heart shows no symptoms of collapse.

I have recently had occasion to give this drug several severe tests in an epidemic of influenza that passed over this section, and I have never had any results from anything else that compare with those obtained from Kryofine. One feature was especially noticeable and also very desirable—its power to relieve the excruciating pains in the head, with which those afflicted with this disease so generally suffer.

As compared with phenacetine it also has the advantage of being capable of producing the same effects with one-half the dose. I employed it in doses of 7½ grains, from three to four times a day, and was perfectly certain that the effects were maintained from one dose to the next. I but rarely have given any other drug in connection with Kryofine. Another excellent feature of the drug is that it does not cause the debilitating diaphoresis so common with the preparations of this class, and which often rendered their administration more harmful than beneficial.

After a dose as before named the patient frequently sinks into a peaceful sleep, from which he arouses greatly refreshed. Delirium, when present, causes no bar to its administration, but on the contrary I have seen it disappear under its influence.

I have also used Kryofine in a case of painful menstruation which had given me a great deal of uneasiness, and in which case I had almost exhausted the materia medica for relief, outside of the narcotics. Kryofine in doses of 7½ grs., every four to six hours, controlled the pain better than any remedy heretofore employed.

A pleasant feature of Kryofine is its almost entire tastelessness. It can be chewed fine without the least disagreeable sensation, although the tablets are so carefully compressed that a slight pressure with the tongue is sufficient to render it fine.

I feel certain that when the profession learns of the advantages of Kryofine, it will be accorded a welcome as warm as is given it in the land of its nativity. I cannot better express my admiration for it than by saying, "It delights the patient and surprises the physician. The former by its efficiency, the latter by its celerity and certainty."

ON THE USE OF XEROFORM IN THE TREATMENT OF SKIN AND VENEREAL DISEASES.

Dr. Heinrich Paschkis, of the University of Vienna, states (*Wiener Klinische Rundschau*, 1897, No. 42) that one of the most important improvements in the treatment of ulcerations of all kinds is the use of remedies in the powdered form. The absence of necessary preparation and the ease of application have given it a permanent place, more especially in the ambulant treatment of the diseases of the skin and the sexual system. The latest and cheapest of these powdered remedies, xeroform, has entirely fulfilled all the demands that were made of it. He has used it in over 100 cases of the most varied kinds, including ulcerations of all sorts, eczemas, and various other skin diseases.

The mode of application was very simple. After cleansing the surface of the ulcerations with a wad of cotton the xeroform was dusted on with a camel hair brush, two to four layers of absorbent gauze placed over it, and the whole when necessary dressed with cotton and a bandage. Bandaging was dispensed with when the ulcerations were seated upon the glans, the inner surface of the prepuce or the sulcus coronarius. Burns were dressed in exactly the same way. In eczemas and other skin diseases the excoriated areas were either treated in the same manner, or they were first powdered with the xeroform and then covered with an indifferent salve of Lassar's paste.

The following cases were treated:

1. Ulcerations of the genitals, including lesions remaining after opening of suppurating lymphatic glands		62
Time of treatment up to cicatrization	4 to 43 days	
2. Herpes, zoster and balanitis		5
Time of treatment up to cure	4 to 11 days	
3. Eczema		6
Time of treatment up to cure	8 to 22 days	
4. Chancre		7
Time of treatment up to cicatrization	12 to 20 days	
5. Ulcers of the leg		5
Time of treatment up to healing	7 to 30 days	
6. Burns		4
Time of treatment up to cicatrization	6 to 108 days	

The action of the drug throughout was a very satisfactory one. Necrotic venereal ulcerations, as well as simple ones of the legs in similar condition cleaned off very rapidly. Healthy granulations sprang up rapidly even in deep ulcerations, and cicatrization advanced daily. Erosions and superficial losses of tissue closed up within a few days at an astounding rate; and the same occurred with the ulcerated initial lesions. Naturally the latter sometimes remained depressed and hard after the ulceration had entirely ceased. Specially valuable characteristics of the xeroform seemed to be that it had no caustic action at all, and never caused the formation of crusts that retained the secretions. It is this latter quality, in his opinion, that rendered the occurrence of suppurative adenitis such a rarity.

Dr. Emerich Ullmann, Lecturer on Surgery at the University of Vienna, also writes as follows: "I can report that I have had the most beautiful results with xeroform in tuberculous ulcerations. The action of the remedy is the same as that of iodoform, but it is distinguished from it by the absence of the penetrating and disagreeable odor of the latter drug."

INCONTINENCE OF URINE IN CHILDREN.

Incontinence of urine, says Dr. J. A. Coutts (*Treatment*, Vol. I, Part 1, No. 13, p. 289), may be associated with many and varied morbid conditions, in which it plays a very unimportant part. In some instances it may be the first symptom to call attention to such serious disorders as diabetes, calculus, hydronephrosis, and others. In nocturnal epilepsy, incontinence of urine may furnish the only evidence of past attacks.

In infancy, incontinence of urine is physiological and is due to the urinary reflex being as yet not under the control of the brain. Its persistency beyond infancy is probably owing to imperfection of control unless it be referable to bad habits and poor training.

In treatment, the ordinary routine practice of awakening the child at stated intervals to miturate is mentioned and commended. This simple procedure will cure the vast majority of cases. In addition to the last, restricting the liquids in the child's dietary during the latter hours of the day seems credible to all.

However, in obstinate cases, if on examination the urine presents a high specific gravity and a high degree of acidity, then instead of limiting the liquids, the author advises that trial be made of encouraging the child to drink freely toward the end of the day. In a few cases by this reversal of the common practice signal success has been scored.

Of drug treatment belladonna takes first rank. But that belladonna often fails is admitted by all. Some of these failures doubtless arise from the method commonly pursued by giving the drug in divided doses throughout the day. A much more efficient plan is to give one single dose in the evening, and to increase this gradually every four or five days. In this way a large single dose can be gradually worked up to, and if the incontinence ceases, can be gradually lessened until the drug is finally abandoned. Belladonna cannot be fairly said to have failed till this method has been tried. Of other drugs the author ranks lycopodium first. While belladonna acts by paralyzing the detrusive muscular fibers of the bladder, lycopodium is stated to have a more selective sedative action on the vesical mucous membrane. The author claims lycopodium was successful in numerous instances where belladonna has entirely failed. The method advised is to give twenty drops of the tincture three times a day to a small child and work up gradually until doses of a dram are given at the corresponding times. Lycopodium has been claimed by some as almost a specific in incontinence of urine, but while it is not that, it is certainly deserving of more extensive trial.

Bromide of potassium is mentioned as being of benefit in those cases in which the act of micturition ensues when waking is imminent or actually takes place. Here the beneficial action lies no doubt in its hypnotic effect rather than in any other action it may have on the nervous system. Strychnine is useful when the incontinence is accompanied with anemia, lassitude, and other departures from the normal health. Then a combination of iron and strychnine is of service.

Of other drugs, such as opium, chloral, etc., the author pleads ignorance.

When drugs fail there are still other measures that may prove of service in obstinate cases. It has been noticed that in many instances the child retains his urine while lying asleep on his side, but that as soon as he turns upon his back emission of urine takes place. The child can be prevented from turning on his back by fixing an ordinary bobbin over the lower spine by means of strapping. With this arrangement, whenever the child attempts to turn on his back the bobbin either wakes him up or else he returns to his former position on his side. In either case the urine is retained in most instances.

Circumcision in incontinence of urine, without phimosis, is uncalled for.

CORRESPONDENCE.

CATHETERIZATION AS A CAUSE OF CYSTITIS.

Editor Gaillard's Medical Journal:

SIR.—On page 188 of GAILLARD'S for March, 1898, are found directions for the catheterization of a woman by the sense of touch, "without exposure of the woman." This clipping is introduced into the JOURNAL under the head of "Therapeutic Notes," but its teaching is so bad as to make it worth a brief communication.

It is well known to all who have devoted special attention to the subject that there is no better method of causing cystitis than the attempt to perform catheterization without full antiseptic precautions. The catheter should never be passed without the exposure and cleansing of the meatus urinarius. The cleansing should be done with bichloride solution 1 to 1,000, and a sterilized catheter passed under the guidance of the eye. Because of the facility with which glass catheters can be sterilized by boiling, these are to be preferred. If a soft rubber catheter is used, this should be boiled five minutes immediately before being used. A glass catheter can be passed without any lubricating material, if it is dipped in the bichloride solution and introduced wet. If a lubricant is used, the best is boro-glyceride solution.

This communication is sent with the hope that it may prevent some of your readers from producing "catheter cystitis."

Very truly yours,
Philadelphia, March 7, 1898. CHARLES P. NOBLE.

FAVORITE PRESCRIPTIONS.

For Conjunctivitis.

Dr. W. H. Wakefield, of Charlotte, N. C., gives the following as a favorite formula, which is varied to suit individual causes:

℞ Acid boric, c. p	grs. 12
Sodi chloridi	grs. 4
Aqua camph.	ʒ 1 to 2
Aqua rosæ, qs. ad	℥ 1 ♏

Instruct the patient to instill into the eyes two to three drops every half hour to six hours, according to the amount of discharge and congestion of the conjunctiva.

When the case does not yield to mild treatment he uses the following:

℞ Zinc. sulph.	gr. ¼ to ½
Ammoni. mur.	gr. ¼ to ½
Aq. menth. pip	ʒ 1 to 2
Aq. rosæ, qs. ad	℥ 1 ♏

Put two or three drops in eyes two or three times daily. Should this not prove effective, evert the lids and brush the whole conjunctival sack about twice or thrice weekly with a solution of silver nitrate, ½ grain to the ounce of distilled water.

Ointment for Acute Articular Rheumatism.

Lemoine (*Nord medical*) gives the following:

℞ Vaseline	25 parts
Salicylic acid	4 "
Sodium salicylate	3 "
Extract of belladonna	1 part

To be applied and covered with cotton.

Resolvent Mixture.

The *Gazette hebdomadaire de medicine et de chirurgie* for February 27 gives the following formula:

℞ Ammonium chloride, Tincture of arnica,	each 10 parts
Camphorated vinegar, Camphorated brandy,	each 75 "
Infusion of rue	300 "

S. For external use.

Silver Nitrate in the Persistent Diarrhœa of Children.

The following formula (*Pediatrics*, February, 1898), has been recommended:

℞ Silver nitrate	1 grain
Dilute nitric acid	5 drops
Mucilage of acacia, Syrup of orange peel,	each 4 drachms

S. A teaspoonful every three or four hours.

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TRANSMISSION OF TUBERCULOSIS THROUGH FOOD.

A CORRESPONDENT writes to the London *Lancet* with some degree of disquietude that he has found proofs of the existence of tuberculosis in fowls sold in the London market. The fears of this correspondent are set at rest, however, by the assurance that there is not much ground for suspecting the transmission of avian tuberculosis to man, for according to Koch and other observers, there is a decided cultural difference between the bacillus of tuberculosis affecting man and that affecting birds. Birds are almost immune against human tuberculosis, and the converse is probably true. Moreover fowls are nearly always served thoroughly well done.

None of these factors, however, act as a bar against infection from eating tuberculous beef. The bacillus there is practically or quite identical with that affecting man; the ox is by no means immune to tuberculosis transmitted through man, and experience has shown that man may contract tuberculosis through the ox. Moreover, beef is frequently eaten very rare, or even raw, and there is, therefore, decided danger of the ingestion of bacilli of tuberculosis by beef eaters. It is for this reason that efforts are being made by the governments of Massachusetts and New York to stamp out tuberculosis in cattle. Unfortunately, however, the inspection of cattle intended for the market is carried out only for the large cities, and whether or not the danger is really as great as is apprehended by some, the majority of our citizens must continue as heretofore to be subjected to it. In Germany, where the inspection of meat has been carried on much more systematically and for a longer time than with us, it has been ascertained that cattle may give the characteristic fever of tuberculosis when injected with tuberculin, although the disease is present in a very mild form or is confined to portions of the viscera which are not eaten. The Germans, therefore, do not wholly reject all cattle giving the fever reaction for tuberculosis, but they examine the slaughtered animals, and where evidence of the existence of tuberculosis occurs, the flesh is steamed so as to be rendered sterile before it is allowed to be marketed. It will be many years before any satisfactory system of meat inspection will be evolved except in the larger cities, and even in the larger cities care must be taken not to unnecessarily reject meat, as otherwise our supply will very soon be exhausted or its price rendered prohibitive.

EXCISION OF THE STOMACH.

IN our last issue we commented severely upon the unseemly haste shown in following up the latest achievements of surgery, and we are pleased to note that the *Philadelphia Medical Journal* takes our view of the matter. In a note which came to our notice after the February issue had gone to press, the *Philadelphia Journal* says: "Schlätter's case of malignant disease of the stomach treated by extirpation of the organ and union of the esophagus and small intestine has already given rise to American imitators. St. Louis and Chicago promptly appear as rivals in this regard. Recent newspapers report with disgusting detail the accounts of a complete gastric resection. Both patients quickly died, but that did not prevent the conspicuous publication of the names of the operators. One surgeon, it is said, "gave out a carefully prepared statement of the case;" the technical character of which description verifies its asserted medical authorship. The operators' haste in following the hazardous lead of the Swiss surgeon, and their promptness in having their operative skill lauded in public print, are painful symptoms of professional degeneracy. Such operative procedures must not be too quickly condemned, for many operations now accepted as justifiable were formerly considered murderous. Still, one cannot but sigh at the unseemly scramble exhibited to immediately follow and even out-do any rash or impetuous operator who performs a startling surgical feat. The patient's welfare too often seems subordinated to a lust for notoriety. It is probable that the patients upon whom complete excision of the stomach has been done would have been made comfortable by jejunostomy with little or no risk to life. "Predigested" food given through a permanent jejunal fistula gives promise of prolongation of life with relative comfort, in cases of extensive gastric carcinoma; complete extirpation of the stomach gives promise of immediate death, not compensated for by the journalistic advertisement given the enterprising surgeon."

THE SEAL OF PROFESSIONAL CONFIDENCE.

SILENCE is probably the safest rule for the physician to follow in relation to secrets which come to him in his professional capacity. It may sometimes seem his duty to warn those interested, but he must be very sure of his ground before doing so. A notable instance of the dangers incident to the utilization of knowledge gained under the seal of professional secrecy was furnished in the now celebrated case of Kittson vs. Playfair. Another interesting case was tried on February 25 before the Probate, Divorce and Admirality Division of the High Court of Justice of England.

In this case a wife sought a decree of divorce on the ground of adultery, the proof of adultery resting on the evidence of two physicians, who testified that both the defendant and his wife were suffering from gonorrhœa. The defendant denied the commission of adultery, and stated that during the whole time of his married life, a few months, he had had intercourse with his wife but twice, and his illness followed immediately afterward. He did not doubt his wife's chastity, but he believed that without having the gonorrhœa she had given him the disease from which he suffered.

When examined, both of the physicians who attended the patient stated that they had not made a bacteriological investigation. Ample evidence was produced to show the great difficulty which exists in differentiating between gonorrhœa and urethritis unless a bacteriological examination is made. The defendant was sixty-five years old, and a physician called to testify stated that urethritis might be produced by having connection with a woman who had leucorrhœa. He also believed that the simple act of connection in an old man who had not had sexual intercourse for some years, and who had taken nourishing food prior to so having connection, might produce urethritis.

The president of the court, in giving judgment, said it was necessary for the petitioner to make out that the disease from which she and the respondent suffered was of a venereal character. The evidence which had been given did not show conclusively that the disease from which the respondent suffered was gonorrhœa. Without wishing to blame the physician in attendance he regretted that he did not take steps to ascertain more clearly that the respondent was suffering from gonorrhœa, although of course at that time no one thought the determination of the question of vital importance; the conduct of the respondent was moreover inconsistent with that of a guilty man. He dismissed the petition with costs against the wife, she having separate estate.

Two cases of syphilitic contagion, embracing in each case almost an entire family, have recently been reported in the *New York Medical Journal*, in which a careful search seemed to indicate that the infection spread from the children to the parents, and was not, as is generally the case, introduced into the family by the head of the house.

Several cases were recently cited in the *Independence Medicale* which aptly illustrate the dangers incident to too great frankness. In one a physician told a woman bluntly, in the presence of half a dozen persons, that she was suffering from syphilis; in another he told the patient, a woman, in the presence of her brother, that she was suffering from syphilis. In both cases a divorce resulted.

Such cases as these are of sufficiently frequent occurrence to make it necessary for the physician to exercise extraordinary precaution before confiding to any one the facts, or what seem to be the facts, learned in his professional capacity.

The plan proposed by the committee charged with the drafting of a bill to reorganize the personnel of the navy will no doubt furnish a satisfactory solution of the vexed questions concerning the relations of the engineer corps to the officers of the line, for the committee propose to practically do away with the distinction and to make all officers engineers. Naval surgeons are still left under the disadvantages as regards rank and quarters, which have so militated against the service as to leave the medical bureau in a state of chronic depletion. Now, almost on the brink of a possible war, the department lacks a dozen or so of having its full complement of surgeons. It is true that in case of actual hostilities a sufficient number of acting surgeons could be obtained from civil life to supply the most pressing needs of the service, but they would be at a great disadvantage as compared with surgeons who have had the advantages which accrue from actual experience afloat. It is to be hoped that this oversight will be remedied before the report of the committee is submitted to Congress for final adoption, for the position of the surgeon in the service needs material and immediate improvement.

The Chair of Disease of the Eye, Ear and Throat at the Medical College of Virginia, made vacant by the death of Professor Charles M. Shields, will be filled at the annual meeting of the Board of Visitors of the college, April 21. All applications, accompanied by credentials, should be forwarded to Christopher Tompkins, M.D., Dean, Richmond, Va.

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GUNSHOT INJURIES IN THE LATE GRAECO-TURKISH WAR, WITH REMARKS UPON MODERN PROJECTILES.*

By HENRY J. DAVIS, M.A., M.B., B.C.Cantab.,

Late Surgeon National Fund for Greek Wounded, and late House Surgeon to St. Thomas' Hospital.

It is almost true to say that all bullet wounds, except those limited to the soft structures, result in fracture of bones. If there is any breach of surface it is of necessity a compound fracture, and is the most unfavorable form of any kind of bone injury, for (1) the wound is an infected one, (2) it is devoid of drainage owing to the long sinus left by the track of the bullet, and (3) the hygienic surroundings are invariably bad. When a joint is opened by a bullet it communicates with the exterior, and being exposed to all the sources of ordinary infective processes it suppurates. A fractured olecranon, a fractured patella and an impacted Colles' fracture are fractures into the joint, but suppuration does not occur unless contamination is admitted to the seat of injury.

It is not my intention in this paper to give a routine description of bullet wounds, but I will confine my remarks to examples of projectile wound that I saw in the late Græco-Turkish war. Definitions never cover all the ground, but I remember Sir William Mac Cormac's excellent definition of a bullet wound as "an extreme form of contused wound combined with the dangerous depths of a punctured wound." Shell wounds, of course, differ in the respect that they usually result in extensive lacerations of the soft tissues, with perhaps comminution of the bones as well.

Modern Bullets and the Wounds They Produce.

Practically only three kinds of rifle bullets were employed in the war. The Greeks used the Le Gras French rifle with a Chassepot lever action. In Fig. 2 is shown one of the cartridges (which they sometimes, as a punishment, hammer up each other's noses) and Fig. 7 represents a ball which entered a Greek soldier's back, and which like two more given me in Turkey showed absence of rifling grooves. This I cannot explain. The Turks used chiefly the Martini-Henry, but some brigades were armed with the German Mauser magazine rifle. Only two of these brigades, that is, about 10,000 men, came into action at Domoko, and it was from this battle and that at Phourka that we filled our hospitals with wounded. A Martini bullet extracted from the foot is shown in Fig. 5. It had perforated and fissured the os calcis, but the shape of the bullet is almost unaltered. Another, Fig. 6, extracted from the left nape of the neck, was impacted and wedged between the atlas and axis, but the bones were not, as far as I could see, splintered. The cutaneous wound was as clean cut as though it had been incised with a knife, and hence I inferred that the bullet had ricochetted off a stone, and I think its general flattened appearance bears out the supposition. The swelling and œdema of the neck were enormous. The wound granulated rapidly. All the bullets extracted at the English hospital at Chalcis, and there were not many, proved to be Martinis (with the exception of 1 shrapnel ball and 2 Le Gras bullets, evidently fired by the patients' compatriots). We never found a single Mauser. I believe none were extracted at the English hospital at Athens, and I could get no specimen at the military hospitals at Chalcis. As a great many men were perforated in the part struck by the ball, and were not completely incapacitated, and it is known that the velocity of the Mauser is something terrific—being effective up to 4,000 yards—it is reasonable to assume that this bullet perforates the part struck, including perhaps the bone, and does little damage compared to the Martini, which, when it strikes a bone, such as the femur, fissures and splinters it in all directions. The disadvantages of the Martini rifles compared to the present magazine rifles are, briefly, that they "kick"

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* A paper read before the West London Medico-Chirurgical Society.

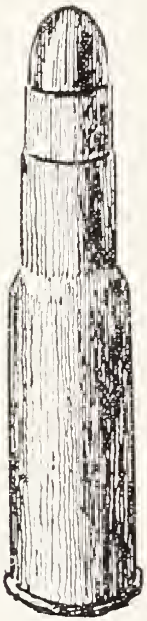
Fig. 1

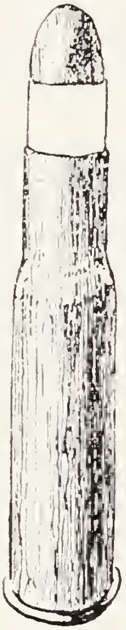
Fig. 2

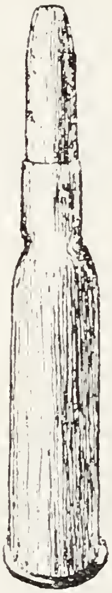
Fig. 3

Fig. 1.—Martini-Henry cartridge (Turks). Fig. 2.—Le Gras cartridge (Greeks). Fig. 3.—Mauser German magazine cartridge (Turks).

hard, they do not repeat, they are short ranged, and the cartridges are heavy to carry. Conical bullets never make the wounds that round balls do, but the trajectory is flatter, they carry straighter, and kill at a greater distance. It may be of scientific, though not actually of surgical interest, to mention a few facts about the bullets employed in modern warfare. I have no specimen of the Mauser bullet, but the French Le Bel bullet (Fig. 12) resembles it in every way. This was given me four years ago by a French sergeant. In the cartridge is the patent French smokeless powder, which is yellow and resembles chopped straw; it is perfectly smokeless. This bullet, like the German Mauser, and to the same extent the first Lee-Metfords used by our entire army, consist of a soft lead core surrounded by a nickel casing. Theoretically on impact the ball flattens or splashes, but this it does not always do. The Le Bel bullet shown in Fig. 12 has been fired as is seen by the rifling, but the nose of the bullet is not altered in shape. In the late Chitral expedition, the English troops noticed that their Lee-Metford bullets did not stop the tribesmen in their wild rushes, and so the ingenious and practical method was resorted to of cutting through the nose of the bullet, or of rubbing it against a stone, thus exposing the soft lead core, which had the desired effect. The velocity of the Lee-Metford is so great that it is said to do more damage at a distance than at close quarters. This was proved experimentally. Three shots were fired, not by me, at an old donkey who was eating hay in a paddock. The bullets passed "clean through" him, but he went on eating as though nothing unusual had happened, and it was not till, I suppose, the symptoms of rapidly advancing peritonitis ensued that he desisted from his meal. The latest Lee-Metford (Fig. 11) has a nose of soft lead projecting beyond the nickel jacket. This umbrellas or mushrooms out, the less yielding metal behind becomes impacted, and the ball opens into a disk and plashes, causing a very cruel wound. A specimen of the bullet in section is shown in Fig. 11. Other Lee-Metford modifications are shown in the diagram. One (Fig. 9) is filled internally with soft

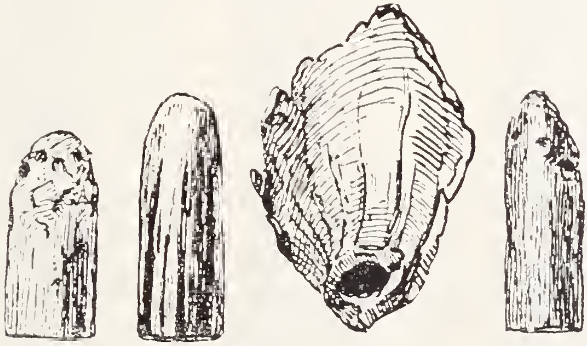
Fig. . Fig. 5 Fig. 6 Fig.

Fig. 4.—Turkish revolver bullet. Fig. 5.—Martini bullet, showing rifling (it perforated and fissured os calcis). Fig. 6.—Martini bullet embedded against vertebræ of neck (probably a ricochet). Fig. 7.—Le Gras bullet (absence of rifling grooves).

wax; this other has vertical slits in the outer casing. These modern bullets are termed "expanding" bullets. The famous Dum-Dum bullets (Fig. 13) are the latest, and derive their name from the Government manufactory in India. They are not made in England. At present they are simply on their trial against the frontier tribes. The bullet resembles a slate pencil, and is a modification of the latest Lee-Metford, but the nickel shield is thinner, and the soft nose is flat and does not project so far beyond the nickel envelope. It was devised in recognition of the facts I mentioned above in the Chitral expedition. I am told on authority that on impact it collapses "like a concertina," making so ghastly a wound that in all probability it would be forbidden in European warfare. Why it should do so more than the Lee-Metford no one seems to know. The expansive principle has been carried to its greatest extent in this "Webley's patent man-stopping bullet." The service revolver bullet (Fig. 14), which looks big enough, is said to be utterly devoid of "stopping properties" unless it strikes a vital part, whereas the bullet shown in Fig. 15, with its deep cup-shaped depression at each end, gives up the whole of its energy in administering the greatest possible shock. When fired through 18 inches of solid beef it assumes, as is seen from Fig. 15, the shape of a lady's sun bonnet or an antiquated top hat. On entering the body, the front acts like a wadding punch, cutting a clean circular hole, which does not close up, like those caused by other bullets.[1] Expansion commences

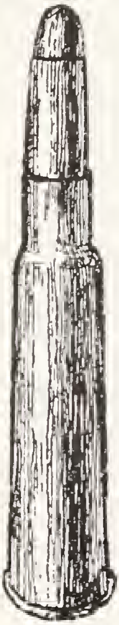

Fig. 8

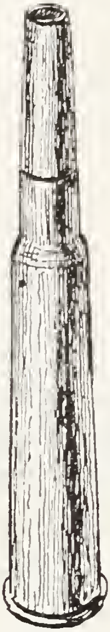

Fig. 9

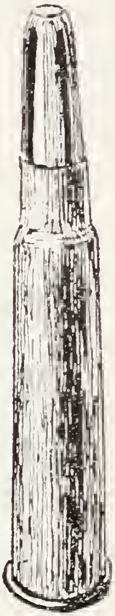

Fig. 10

Fig. 8.--Soft nose Lee-Metford. Fig. 9.—Wax-cored Lee-Metford. Fig. 10.—Lee-Metford with lead core and vertical slits in outer nickel casing.

at once, and after traveling six inches it produces a jagged hole four inches in diameter, a wound doubtless sufficient to finish even a fanatic.[1]

Shell Wounds.

Shrapnel and common shell were employed by both Turks and Greeks. We saw several severe lacerations caused by common shell. The worst was that of a young Greek woman, who had the back of both thighs hugely lacerated, the raw area being extensive. She had no fracture. She was in the Chalcis Hospital for two days on a stretcher, but we shipped her off to the Piræus, where she became convalescent and did well. Pieces of rock and stones are thrown up by shell and may do considerable harm. Shrapnel, which consist of round iron bullets surrounded by the shell casing, did little harm in this campaign. I saw some cases in the Turkish hospitals, but in the English hospital we only saw two in which we were certain that the injuries were caused by shrapnel. One of my colleagues extracted a shrapnel ball embedded in the right trochanter. The femur as far as we could ascertain was not otherwise injured, though there may have been fissures radiating from the cavity. Movement at the joint was always free. The patient convalesced very slowly. The other case was that of a gunner, who had a round shot hole through the left calf, the aperture of exit being extensive. He thought he had only been struck by a bullet, but I noticed scorching of the skin and hairs around as well, and as the Turks were bursting shrapnel at his battery and some exploded near his feet, I have no doubt this was caused by that projectile. A well-known war correspondent who left Greece after the battle of Pharsala owing to ill health, told me that up till then he had not seen for certain a single injury caused by shrapnel among the Greeks. He had seen, at Trikhala I think, two men supposed to have been wounded thus. As no Greek surgeons were at hand he went into the hut where the men were to render assistance. One he found had a large syphilitic ulcer on the leg, and the other he stripped and examined carefully, but he could find nothing wrong with him except a large corn on his left foot. The immunity from injuries due to shrapnel fire, I think, can be explained thus: In common shell there is a bursting charge of powder in the base; on impact a needle in the cone is driven against the per-

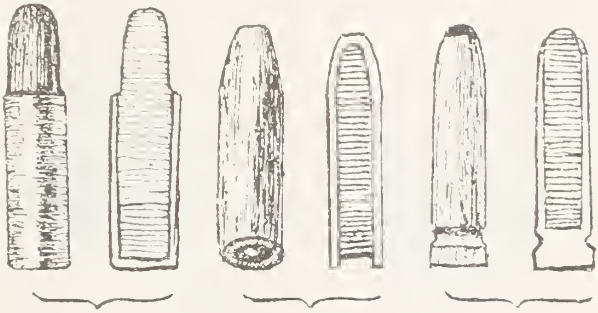

Fig. 11 Fig. 12 Fig. 13

Fig. 11.—Soft nose Lee-Metford bullet, 303, in elevation and section. Fig. 12.—French Le Bel, in elevation and section. Fig. 13.—Dum-Dum, in elevation and section.

cussion cap and the shell explodes, the fragments being scattered in all directions, radiating from the center. A common shell then does just as much harm if it bursts 100 yards from the gun muzzle or three miles off, that is, at the extreme limit of the range of the gun. But with shrapnel it is very different: the bursting charge in the shell is ignited by an adjustable time fuse, and is only just sufficient to release the bullets from their casing, and they fly straight on, their powers of damage depending not on the bursting charge, but on the momentum of the shell at the time of the explosion. Therefore the greater the distance from the gun at which it bursts the less damage the bullets will do. The Greek infantry preferred not to expose themselves to the Turkish shell firing, or, indeed, to any other for the matter of that, and hence their comparative immunity. Shrapnel wounds, then, are practically round shot wounds, and are not as a rule a combination of bullet wounds *plus* the disastrous effects of common shell explosions. The base of a Turkish Horse Artillery shell, a 12-pounder I should think (shown in Fig. 16), was given to me by one of the Red Cross sisters who picked it up on the field of Velestino. The gauge is marked on the base in Turkish letters. It must have burst splendidly. The dangerous zone of shrapnel if it bursts at the right elevation, that is about 80 feet from the ground, is about 2 acres. The cone of dispersion of the bullets is simply in the direction of the traveling projectile, and the base of course widens the farther the bullets travel. When troops present a small front as in marching up a road, the shell is timed to burst close to the advancing column, when if properly directed it sweeps the whole line; if a larger front is presented the shell is burst well ahead to sweep a greater area. Shrapnel firing, then, requires a very accurate knowledge of distance and gunnery to be effective. The shrieking of bursting shrapnel is caused by the released bullets whistling through the air, and resembles the screaming rockets which are fired at the Crystal Palace. It has a very demoralizing effect on troops, and even if no one is hit, all are frightened a good deal more than they would care to admit. I was told by a Turkish surgeon in Constantinople in the Sultan's

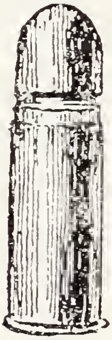

Fig. 14.

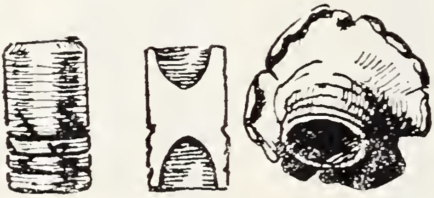

Fig. 15.

Fig. 14.—0.476 Revolver cartridge. Fig. 15.—Webley's "patent man-stopping bullet," in elevation and section, and the same when fired.

Hospital, erected temporarily at Yildiz Kiosk, that they had suffered much from shrapnel; in other words, the Greeks were better gunners in spite of the fact that German officers were assisting the Turks, who also fought more in the open and almost scorned to take shelter when advancing. There were many more casualties on the Turkish side than on the Greek, though all the Greek hospitals were filled to overflowing. These remarks may seem to have little bearing on the surgical aspect of my paper, but it is the nature of wounds caused in battles that determines the continued use or the disuse of certain projectiles, and by whom can these be better judged than by the medical men who have the care and charge of the wounded?

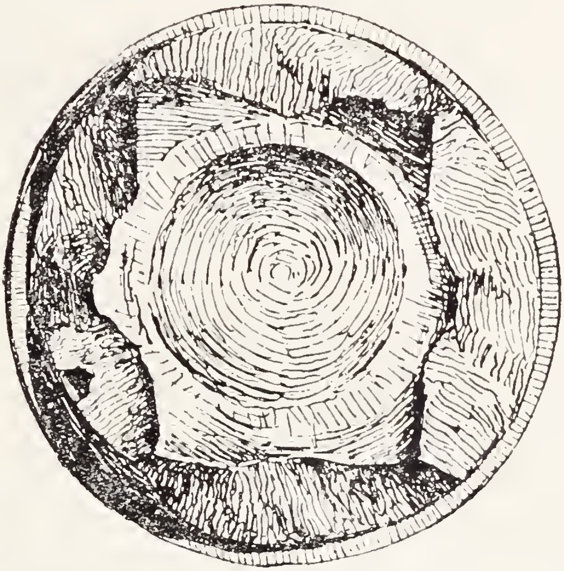

Fig. 16.—Base of Turkish common shell. Twelve pounder. Showing complete symmetrical fracture.

Character of Wounds.

If I were asked what were the points that struck me most in injuries of this kind (for with the exception of a few revolver and gunshot wounds which I had seen in hospitals my knowledge on the subject was very limited) I should say that I was at first surprised at the comparatively little damage done by rifle bullets. In some cases, it is true, it was enormous, but in the majority of wounded men, the ball had passed straight through the part struck, leaving a tiny bluish black hole at each end, resembling to my mind, a magnified leechbite wound of about three days' standing. In most of the cases it was impossible to tell by the appearance of the wounds which was the hole of entry and which was that of exit; the patient himself could rarely say, and it was only by ascertaining his position when struck that this could be determined. Some of the edges of the entry wounds were inverted, but not all; some, especially the oblique wounds, were round and gaping. The wounds of exit in many cases seemed the same as those of entry; a few, however, had everted edges. Superficially the wound is nearly always smaller than the bullet producing it. This has been accounted for by the great twist there is on the ball at the time like the screw on the turning point of a gimlet—but is that really so? I should say that a bullet traversing the whole body would not revolve on its long axis more than, at the most, half a turn, unless it is arrested in the tissues, when theoretically it would spin like a top; hence the area of the internal wound often bears no proportion to that of the external wound. If an express bullet be fired into a thick board it will hardly be possible to pass even a wire down the track of the ball. I asked nearly every wounded man I saw in the war, however slight the wound, excepting perhaps grazes and hand wounds, whether he was knocked over when struck. This seemed to be invariably the case. When hit, he experiences the sensation of a sudden heavy blow. If wounded in the head, trunk or lower limbs, he does not fall forward as one sees on the stage, but collapses and sinks to the ground, turns pale, sweats and often vomits. All this may be due to the mental shock, or the consciousness that he has at last succumbed. The ball rips through the tissues, carrying in pieces of cloth or other foreign bodies, which are left in the bullet track, leading to suppuration and the formation of a troublesome sinus, and requiring the continual "tinkering" which is characteristic of these wounds.

I believe it to be a fact that the Lee-Metford and other modern bullets have so high a velocity that at close quarters pieces of cloth, etc., are not carried before the bullet in its track. I wish especially to point this out, as it means that the severity of the wounds as regards infective processes is thereby diminished. Another point that struck me was how very difficult it was to tell at a glance whether a fracture existed or not. This may be due to the fact that there is not a complete solution of continuity of the bone, and as the fracture is due to direct violence very little displacement arises. I observed many instances of this. One man, I remember, was struck when the right elbow was flexed in the act of firing; there was one wound over the olecranon and another about 2½ inches above the joint posteriorly. There were swelling, œdema and extravazation up the arm, but though I was certain that a fracture, and an extensive one, too, existed, there was no backward displacement of the forearm, such as we see in a transverse fracture above the condyles, nor could I detect crepitus. Forcible manipulation was not attempted for obvious reasons. Later, when the œdema disappeared, a great mass and thickening of bone was felt at the lower end of the humerus. The sinus proved troublesome, and the patient suffered considerably. Some time later the joint was opened posteriorly, and the sinus scraped. The fracture was in the process of repair but there were still evidences of a comminuted fracture of the bones. The man did well.

Another case was that of a bullet wound on the outer side of the left thigh, the patient having been shot from the hills above while fighting through the Phourka Pass. The wound was oblique, and the ball in the limb. A first dressing had been applied by the Greek military surgeons, who are most careful in their antiseptic methods. The patient was huddled up with 300 other wounded in the hold of a collier, used as a transport, which presented the most gruesome sight of tortured humanity I have ever seen. When taken to our hispital, he "hobbled" to a chair, and I redressed the wound. I suspected a fracture from the swelling of the limb; but I thought it might be partial only. When the patient was in bed, on raising the foot it was quite apparent. Large pieces of bone were resected in this case. The femur was comminuted and fissured in all directions, fragments being driven into the adjacent muscles, and yet the characteristic deformities in which we rely on the diagnosis of fractures were not apparent. The veriest tyro in surgery could detect, at sight, a fractured femur in the middle and lower thirds in an ordinary accident, unless, perhaps, the fracture was transverse, as often occurs in children. There was no overriding of fragments in this case, as there were practically none left to override. The limb became gangrenous, and it was amputated by one of my colleagues, but the patient died some hours later. A search was made for the ball in vain; it may have been comminuted itself That it was a Martini I have no doubt, as the Mauser brigade did not come into action at Phourka, where this man was wounded. The wound well exemplifies the fact that the extent of the deep injuries inflicted bear an out-of-the-way proportion to the small area of the external wound.

Bone Injuries.

I have already mentioned some interesting clinical facts on injuries to bone. It was very noticeable how rapidly wounds of the upper extremities, and severe ones too, such as compound fractures of the humerus, healed compared to corresponding wounds of the lower limb. Some of the cases of fractured radius practically healed under a scab, and in one case there was no exfoliation of bone whatever. The heel and ankle injuries did badly. Unless the fracture is keyhole, there is nearly always comminution, by which we mean secondary fractures at the seat of injury. Many of these little fragments must be stripped of their periosteum, but they do not always necrose, for they serve as a mechanical scaffolding for the granulations to grow on and to ossify. The heat produced by a bullet striking a bone may be very great, and it is said to add to the severity of the injury. What we view in a museum specimen is not the bone itself, but the skeleton of the bone. When inflammation resulting from injuries occurs the hard substance merely takes on a passive inflammation, the active inflammation being limited to the soft structures in the Haversian canals, which become swollen and œdematous from exudation with the production of new bone. A bullet injury, apart from the inflammation set up at the seat of fracture, may result in osteitis or even in periostitis. The former is very common and requires continual surgical interference. I saw an admirable example of the latter at Vienna. Here a femur had been amputated for old gunshot injury, but I noticed on its surface, in addition to the deformed mass of osseous tissue at the seat of fracture, a beautiful series of longitudinal grooves extending up the shaft from the enlargement of the periosteal vessels. The condition was that of an osteoplastic periostitis.

Wounds of Joints.

That a bullet wound of the knee-joint does not always suppurate, perhaps resulting in irreparable harm, was proved by the Mayor of Lamia, who fired at some sheep in the pass and hit a refugee woman in the right knee. The ball had perforated the outside of the joint. She eventually came to the English hospital at Chalcis, where she was treated as an out-patient. We fixed the limb in an improvised splint, and after a few attendances, and when she was almost well, she disappeared, so it is only fair to assume that she made a perfect recovery. We had another bullet wound of the knee-joint. The ball, a Martini, lodged in the outer condyle. It was extracted, some osteomyelitis was perhaps set up, but the patient when he seemed on the high road to recovery suddenly died with symptoms of pulmonary embolism.

Injuries to Soft Parts.

1. *Contusions.*—If a man is struck obliquely by a bullet a simple contusion may result. There may also be a subcutaneous fracture. We saw one instance of this. The right ribs were "black and blue" from extravazation. It was assumed that a fracture of rib existed, though crepitus was not detected.

2. *Furrowed Wounds.*—A ball may run parallel to the surface grooving it; "furrowed wounds," as they are termed. A man had been struck in the right cheek and the bullet lodged in the jaw. The cheek was cleanly furrowed, having as the base the mucous membrane of the mouth. There was some necrosis, but a plastic operation was performed by my colleague, Mr. Fox Symons, with admirable result.

3. *Seton Wounds.*—A ball fired obliquely burrows for some distance just under or a short distance beneath the skin and then emerges. A gendarme at Lamia tried to interfere in a quarrel between two other gendarmes who were doing a little pillaging on their own account. A few shots were exchanged, with the result that the spectator was shot through the right pectoral region with a revolver. The bullet burrowed under the right pectoral region and passed out at the axilla. The track of the bullet was marked by a ridge of elevated tissues for the whole of its extent (about 6 inches) with great redness and enlargement of glands. It seemed to be a case in which it was feasible to lay open the whole sinus, and this I did and scraped the track with a Volkmann spoon, removing at the same time several pieces of cloth. I am certain, judging by other cases, that this would have produced a troublesome sinus, if not a worse result, but as it was, after paring the edges of the pectoral muscle and inserting some deep stitches, the wound, to my surprise and gratification, practically healed straight away, and the patient, though one of the last in, was the first out of the hospital.

4. Sometimes a ball enters the tissues and falls out again. I may give an amusing example of this. A soldier was struck in the middle of the back in the left erector spinæ. There was simply a wound of entry. I asked the patient, through an interpreter, whether the military surgeons had removed the ball. He replied in the negative. I proceeded to search for it, but without avail. There were no signs of abdominal injury. I made a second search next day, enlarging the wound and probably

giving the poor fellow much pain. He then inquired what I was doing to him. On being told I was trying to extract the ball he replied, "I have it here in my shoes. I found it in my trousers after the battle." The bullet (Fig. 7) is a Le Gras bullet, evidently fired by his own side, so the wound was not so dishonorable as might appear. There is no rifling on the ball.

5. A bullet may perforate a part of the body struck, and emerge, almost unchanged, or it may undergo comminution itself without necessarily fracturing a bone, though bones are really not so hard as is assumed. An example of the first was that of an English volunteer who had been engaged with the Turkish Mauser brigade. He had been shot under the right clavicle, and the ball had passed out posterior to the scapula, which must have been perforated. The wounds of entry and exit, which seemed exactly of the same size and character, healed rapidly under a scab. How the vessels and nerves about the region escaped is a wonder. He had no hæmoptysis, but some part of the lung must have been wounded. He had been shot at at about 800 yards. The Mauser is good for 4,000 yards, so it presumably passed through the part, and proceeded with almost undiminished velocity. Another remarkable case of vessels and nerves escaping was that of a patient struck in the palm while firing. The ball entered the web of the finger and passed out at the ball of the thumb. There was no loss of sensation or any signs of injury of the median or ulnar nerves, and the palmar arches presumably also escaped. We saw several perforating flesh wounds of the thigh, but the vessels escaped.

Chest Injuries.

An Evzone[2] was shot through the left shoulder. The humerus was not fractured. The bullet, a Martini, we found by X-rays in the lung. Pneumonia, pleurisy, hæmorrhage into the pleura and empyema rapidly supervened. The chest was first aspirated, and then a portion of rib excised. The patient was extremely ill, and had it not been for the excellent nursing he received at the hands of the Red Cross Sisters he must inevitably have died. The ball will doubtless become encapsuled, as is the case with General Smolenski, who carries a ball in his lungs to this day. Another lung case was that of a man shot through the right chest. The ball emerged to the left of the ensiform cartilage; a fracture of the rib existed. The patient had pleurisy, diphtheria, pleurisy and pneumonia on the other side, and eventually had a biliary fistula in the axillary line about the level of the fourth rib. The ball had perforated pleura, lung, diaphragm, and injured also the liver. We left both these cases in the Queen's Hospital at Athens convalescent.

Pelvic and Abdominal Wounds.

Pelvic wounds are very serious and used to be a frequent cause of pyæmia. We saw a very severe case. The patient was a Garibaldian volunteer, aged 17. He was fighting the Turkish Mauser Brigade and was struck in the left hypogastrium. He had been in the German Red Cross Hospital at Stylida, but after the battle at Phourka he was sent on to Chalcis. The abdominal tissues were sloughing. The bullet had perforated the small intestine, passed through the bladder, through the rectum (the two holes could be plainly felt by examination), and out through the buttock. There had been localized peritonitis. The matted gut was raised out the pelvis, which was a cavity filled with pus, large sloughs, urine, contents of intestines and undigested curds. It had to be emptied and dressed every four hours. I used to get my right hand through the abdominal opening into the pelvis and scoop out the stinking contents with the palm. A more disgusting dreadful condition I never saw. The poor fellow became emaciated to a degree, but hung onto life with wonderful pertinacity. He eventually died of exhaustion. Among other interesting cases was one of what at first appeared to me to be a furrowed wound about the level of the natal fold of the left thigh. The ball, I assumed, had not passed into the thigh. There was no dressing on the wound, though the patient had been wounded at Phourka about thirty-six hours before. I found him in the hold of the collier already referred to, and as he looked extremely ill and we only took out the worst cases, the journey from Chalcis to Athens being about twelve hours, I assumed he was more severely wounded than at first appeared to be the case. The wound was dirty, and the clothes covered with mud, grime and blood were in contact with the wound. The patient had several rigors, which he attributed to fever, from which he was a continual sufferer (and I did find the spleen enlarged), and asked for quinine which is a drug every one takes as a preventive. Next day I found the thigh immensely swollen, as though hæmorrhage had occurred into the limb, and there was emphysema from the thigh almost to the ankle. Amputation was out of the question, as the abdomen was discolored; but several long incisions were made, and gas hissed and bubbled out of the limb, mingled with dark, venous blood. The stench was awful. The bullet, a Martini, was found just under the skin, which it had undermined for about two inches from the spot which I assumed was the exit of the ball. This, then, was a case of acute emphysematous gangrene. The case was hopeless, and the patient died four hours later. We isolated him as best we could. He happened before I discovered his condition to be in the next bed (and from want of space they were necessarily closer to each other than was scientifically correct) to the patient whose femur was amputated. I cannot say whether one infected the other. Nothing further of the kind occurred in the room, though there were several severe injuries to lower extremeties, splintered tibia, perforated wound of ankle, two of the os calcis, a laparotomy, and several very severe cases beside.

The laparotomy case was that of a man who was shot through the abdomen, the ball passing out in the flanks. He had signs of internal hæmorrhage. My colleague, Mr. Abbott, opened the abdomen and removed clots, but could find no injury to intestine. As there was no hæmaturia, presumably the spleen was lacerated. The patient made an uninterrupted recovery. This was the only laparotomy on the Greek side during the war that I heard of. Some had been performed by Red Cross surgeons witih the Turks, but these, I am told, mostly proved fatal. Whatever correspondents may have thought of the fighting propensities of the Greeks, I must say that the wounded were most heroic in enduring their sufferings and privations. Mr. Abbott is himself reading a paper on his cases later, and I therefore wish to thank him for his courtesy in allowing me to mention them before their publication.

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[1] The *Field*, August, 1897. [2] Evzone ευ-ζωνα, that is, "well belted," a term applied to the kilted regiments of the Greek army.

A CASE OF SUCCESSFUL OVARIOTOMY IN A CHILD FOUR MONTHS OLD.

D'Arcy Power, surgeon to the Victoria Hospital for Children, reports a case (*Brit. Med. Jour.*, March 5) which is remarkable on account of the tender age of the patient, as well as the successful issue of the operation. It shows that abdominal section is not very serious even in the youngest children, if proper precautions be taken to minimize shock. A breast-fed girl, aged four months, was admitted into the Victoria Hospital for Children, under the care of Dr. Carr, February 7, 1898, suffering from distension of the abdomen. The child was in fairly good health until three weeks ago, when the abdomen began to swell. The child was not in pain. On admission the abdomen was enormously distended, and was very tense. It was dull on percussion, except in the left flank, and the area of the dulness did not alter with the position of the patient. A well-marked thrill could be obtained with ease. The child measured 20½ inches in circumference at a point two inches above the umbilicus, and 10½ inches from the symphysis pubis to the tip of the xiphisternum. The urine was normal, and there was no œdema of the legs.

An abdominal section was performed on February 10, an incision three inches long being made in the linea alba above the umbilicus. A small quantity of fluid escaped as soon as the peritoneal cavity was opened, and a thick walled cyst immediately presented at the opening. The cyst wall was bluish in color, and many delicate blood vessels ramified over its surface. It was quite smooth, shiny, and there were no adhesions. A very fine cannula and trocar were inserted into the cyst, and about two pints of clear yellow fluid were drawn off as slowly as possible, to enable the circulation to adapt itself to the altered abdominal conditions. The whole cyst was then drawn out of the abdomen, a large incision was made in its wall, and the remainder of the fluid was allowed to escape. The total contents of the cyst amounted to 59 ounces. The cyst was then found to be attached by a pedicle about the size of a slate pencil in thickness. The pedicle was transfixed, tied in the usual manner with fine silk, divided, and was allowed to drop back into the abomen.

The child was a little collapsed after the operation, but it soon rallied, and made a perfectly uneventful recovery, being ready to leave the hospital within a fortnight of the operation.

Subsequent examination of the cyst showed that it was a simple sac containing in its wall one or two thickened nodules which were themselves undergoing cystic degeneration.

FERRO-SOMATOSE.*

By Dr. E. ROOS,
Assistant Physician to the Medical Polyclinic at Freiburg.

The investigations which have been undertaken at the Medical Polyclinic in this city with a new iron preparation, ferro-somatose, have given so favorable results that, at the request of my chief, Professor Thomas, I communicate briefly our experience in the following:

Ferro-somatose is a light-brown powder, readily soluble in water, and containing about 2 per cent. of iron in organic combination.

We have treated with this remedy a number of weak and chlorotic girls, without changing their mode of life or their diet, with the result that, in a short time, the bodily weight and the amount of hæmoglobine increased, and that the general health and strength were materially improved. This occurred in two cases which had been previously treated for a considerable time with other ferruginous preparations, but without any decided benefit. The remedy was given in daily quantities of 5 to 10 gm., divided in two or three doses, and dissolved in various fluids. In three cases, under administration of 10 gm. daily, a laxative effect was manifested, which, however, proved rather agreeable than otherwise, since most of the patients suffered from constipation. Other patients took this dose without any such after-effects. Under the use of doses of 5 gm. pro die there was practically no influence upon the state of the bowels, except, perhaps, that the stools, which are usually costive, became somewhat regular.

To explain more fully what has been above stated, we present in brief the main particulars in the histories of four patients treated with this preparation.

Case I. A. St., domestic, aged 24, quite weak and emaciated, moderately anæmic. In the last few weeks has had a tendency toward diarrhœa; at present stools are regular. No organic disease. Had to leave service on account of weakness and lassitude, and for some time has been in a home for servants, but has recuperated but slightly under use of a stomachic (tinct. cinchona and nux vomica); appetite poor.

June 30, 1897, bodily weight 48 kilo, 850 gm. Amount of hæmoglobine in blood 70 per cent. (estimated with Fleischl's apparatus).†

July 1-7, patient takes 5 gm. ferro-somatose daily, which is well tolerated. At the end of this time she felt better and stronger; appearance and appetite improved. Stools more frequently than formerly (usually two daily). Weight 50 kilo, 200 gm. Amount of hæmoglobine 75 per cent.

July 8-14, 5 gm. ferro-somatose daily. July 14 feels quite well and vigorous and is able to assist her attendant considerably in her work.

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* Translated for Gaillard's from the *Therapeutische Monatshefte* for September, 1897.

† All estimates made according to Fleischl, the patients being weighed in same clothing and at same times.

One stool daily, of firmer consistence. Weight 50 kilo, 700 gm. Percentage of hæmoglobine 75-80.

July 15-22, 5 gm. ferro-somatose daily.

July 24, patient feels and looks well. Has worked vigorously during the hot weather of the last few days, which, she thinks, has prevented her from increasing more in weight. Has a good appetite. Weight 50 kilo. 900 gm. Percentage of hæmoglobine 85. Discontinues treatment.

Case II. Miss E., aged 20, states that she has suffered for several months from chlorosis, great lassitude and occasional pains in the stomach. Slight constipation. Moderately well nourished, quite pale; conjunctiva and lips markedly anæmic. Heart sounds clear; no organic disease. Lives with her parents and kept up housework even during the course of treatment.

June 30, bodily weight 52 kilo, 900 gm. Amount of hæmoglobine in blood 40 per cent. Blood corpuscles of varying size.

July 1-9, ferro-somatose, 5 gm. twice daily.

July 10, powder well borne; patient claims to have a better appetite, and is somewhat stronger. Has one alvine evacuation daily, somewhat easier and more regular when compared with the previous condition of constipation, when she usually had a movement only every second day. Weight 53 kilo, 650 gm. Percentage of hæmoglobine 40.

July 11-23, 5 gm. of the remedy daily.

July 24, patient feels greatly improved and no longer feels as tired as formerly. She also looks much better, which is confirmed by members of the family. One stool daily, which is less firm than before administration of the preparation. Appetite excellent. Weight 54 kilo, 500 gm. Hæmoglobine 55 per cent.

July 24-31, 5 gm. ferro-somatose daily.

August 1, feels and looks well, is perceptibly stronger. Weight 55 kilo, 100 gm. Hæmoglobine 65 per cent. Remedy discontinued.

August 12, health excellent. Weight 55 kilo. Hæmoglobine 70 per cent.

Case III. M. H., aged 22, domestic, had suffered during the previous year from protracted chlorosis, from which, despite ferruginous medication, she never completely recovered. Since May, 1897, her condition had again changed much for the worse; she always feels tired and has but little appetite. Since six weeks she has been treated with various stomachics and iron preparations, but improvement has been very tardy. When seen, July 2, is still pale and languid. Conjunctiva and gums very anæmic. Heart sounds clear; no perceptible organic disease. Weight 55 kilo. Hæmoglobine percentage of blood 50. Isolated blood corpuscles somewhat smaller than the average, while some are changed in form.

July 3-6, 5 gm. ferro-somatose, twice daily. This is followed by slight diarrhœa, without detriment to the general health. Remedy discontinued for a few days.

July 11-16, 5 gm. ferro-somatose daily. July 16, one stool daily; appetite improved; patient feels stronger.

July 17-24, 5 gm. daily. July 24, color of face better; patient thinks the powder acts more efficiently than the pills previously taken, and is able to eat more than formerly. One stool daily. Weight 56 kilo, 250 gm. Hæmoglobine 60 per cent.

July 25-31, 5 gm. daily. July 31, appearance was found to be greatly improved; face fuller, gums redder; appetite good; stools regular. Weight 56 kilo, 500 gm. Hæmoglobine 60-65 per cent.

Returns to service August 1, but continues medicine in 5 gm. doses pro die, for a period of six days.

August 10, weight 57 kilo, 100 gm. Hæmoglobine 65 per cent. Appearance and general condition very satisfactory.

Case IV. B. M., domestic, aged 19, has suffered since a year from marked chlorosis. From November, 1896, to March, 1897, she had been treated in hospital for this condition with some improvement. She returned to service at the end of March, but in April there was a return of her former troubles, and weakness. She was compelled to give up her place, and since the beginning of May has been in a home for servants, and up to the present date (July 22) has been treated with various iron preparations and arsenic, with but very slight success. Patient is moderately well nourished; face and mucous membranes very pale. Loud systolic murmurs at apex and base of heart; otherwise no perceptible organic disease. Examination of blood reveals a moderate degree of poikilocytosis; red blood corpuscles vary greatly in size, and their total number is seen to be considerably diminished in the simple microscopic picture; unfortunately, they were not counted. Abundant formation of granules; hæmoglobine 25 per cent.; bodily weight 56 kilo, 500 gm.

July 22 and 23, ferro-somatose, 5 gm. daily. As this was followed by some diarrhœa, it was discontinued on the 24th.

July 25-31, ferro-somatose, 5 gm. daily. On July 31 patient returned and stated that she felt more vigorous and had a better appetite. Appearance improved. Stools same as before taking the remedy, viz., once daily. Weight 57 kilo, 100 gm. Hæmoglobine 25 per cent.

August 1-7, 5 gm. daily. August 7 patient feels better and stronger and states that no other remedy has produced so rapid improvement. Stools regular. Weight 70 kilo, 550 gm. Hæmoglobine 30 per cent.

August 7-14, 5 gm. daily. August 14, weight 57 kilo, 200 gm. In contrast to previous weeks, has walked about a great deal, has a good appetite and feels stronger. Appearance greatly improved. Stools regular. Hæmoglobine 35 per cent. August 14-19, 5 gm. daily. Weight 57 kilo, 500 gm. Hæmoglobine 35 to 40 per cent. Poikilocytosis seems to be less decided; greater formation of rouleaus. General condition satisfactory; feels much stronger, appetite better, stools regular. Systolic murmur perceptible only over pulmonary artery. Leaves for a visit to a relative.

Several other cases improved rapidly and considerably as regards nutrition, and the state of the blood. From these observations we were impressed with the idea that ferro-somatose combines the well recognized nutrient properties of somatose with those of a good iron preparation in an efficient manner.

SOCIETY PROCEEDINGS.

REMEDIAL MEASURES IN OBSTRUCTION OF THE COMMON BILE DUCT.*

By J. McFADDEN GASTON, M.D., Atlanta, Ga.

The cases of jaundice which result from the temporary closure or constriction of the common bile duct are usually left to the treament of the physician, and yet are the precursors of derangements which require surgical interference, and hence come within the sphere of this paper. They commence with functional disturbance, but terminate in organic derangements.

Murphy lays great distress upon the relief of jaundice by pilocarpine. The reliance of the greater number of practitioners for relief in this class of cases has been and continues to be upon the phosphate of soda. But there have been more good results claimed from the employment of olive oil, internally, than from any other remedy of this class. After exhausting medico-chirurgical means of treatment for biliary complications, without arresting obstruction of the common bile duct, the surgeon is confronted with conditions calling for operative interference. There may exist a stenosis or stricture of the walls of the duct, without occlusion of the canal, dependent upon inflammation, or there may be a partial obstruction of the lumen of the duct from the presence of a gall-stone, which permits the bile to pass around it to a limited extent. In some cases, Fenger has demonstrated that a gall-stone may be so located as to form a valvular closure. Though an outlet may be artificially provided for the bile by connecting an opening in the gall-bladder with one in the abdominal wall, there is not always relief to the cholæmia, and its effects upon the general health of the patient continue even to a fatal termination. In a case presenting no enlargement of the liver the incision should be made on a line an inch and a half below the border of the costal cartilages, and should be about three inches in length.

I have elsewhere given an unfavorable opinion in regard to exploratory puncture, and do not consider it entitled to recognition as a means of diagnosis or measure of treatment. The various measures recognized for the relief of obstruction of the common duct by gall-stones are breaking up of the calculi by the needle, crushing by padded forceps, forcing them into the gall-bladder or duodenum, catheterization, and excision through the walls of the duct. In some cases it is impracticable to attach the gall-bladder to the parietal opening or to suture the incision in the wall of the duct when a stone is extracted, and thus it becomes necessary to provide for drainage by packing with gauze, around the field of operation, and leaving the ends of the strips extending out of the wound.

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* Abstract of paper read before the American Surgical Association, April 20, 1898, at the New Orleans meeting.

In doing operation upon three white women for obstruction of the common bile duct by forming a fistulous opening for the bile externally, the cholæmia persited in an aggravated form until death supervened in each case. In some conditions of temporary impediment to the flow of bile through the duct into the duodenum, the attachment of the incised gall-bladder to the parietal opening has relieved the obstruction and been followed by the restoration of the bile. It is in order to state that only in complete occlusion of the duct, which has proved intractable to other procedures, has an artificial opening from the gall-bladder or the common bile duct into the alimentary canal been thought proper.

This anastomosis is effected in various ways, either with the duodenum, the small intestine or the colon, the last named being least desirable, as it fails to secure the advantages of the bile in the process of intestinal digestion. My experiments upon dogs demonstrated the feasibility of this fistulous communication of the gall-bladder with the bowels, and it is a matter of minor importance by what process it is accomplished.

The statistics in the past show that the various modes of procedure are comparatively free from danger and are attended with a marked degree of success, so that we may reasonably expect cholecystenterostomy to be recognized as a safe and efficacious recourse in the future annals of surgery.

A NOTE ON CERTAIN POINTS OF TECHNIQUE.*

By A. E. WRIGHT, M.D., Dublin,
Professor of Pathology, Army Medical School, Netley.

A Rapid and Convenient Method of Sterilizing Syringes and Surgical Instruments.

The ordinary methods of sterilizing syringes or instruments by either prolonged boiling in water, or prolonged soakage in antiseptic solutions, are unsatisfactory in several respects. In the first place both these methods of sterilization involve a considerable loss of time; and, in the second place, the repeated application of these methods is very destructive both to surgical instruments and also to the asbestos plungers which are employed in syringes. These defects, which are inseparable from the ordinary methods of sterilization, can be very simply avoided by employing as our sterilizing agent olive oil at from 160° to180° C. instead of water at 100° C. In order to obtain complete sterilization by this method it suffices in the case of a surgical instrument to dip it for an instant into the hot oil. In the case of a syringe it suffices to fill in the syringe twice with oil at the stated temperature. The temperature may be determined either by a thermometer, or if a thermometer is not at hand by a piece of ordinary bread-crumb. It will be found that bread-crumb will become *brown* and crisp as soon as a temperature of from 160° to 180° C. is reached. This method of sterilization has been found very convenient in the ordinary routine work of the laboratory. It will probably also prove of service in surgical practice. It is especially applicable in cases where there is no time for the prolonged soakage of instruments, and, further, in cases where an instrument has become accidentally contaminated in the course of an operation. The method of employing hot oil as a sterilizing agent is also a method which would appear to be readily applicable in ordinary practice for the sterilization of syringes. The olive oil may be heated in a spoon over a spirit lamp, and the heat may be tested by the proposed bread-crumb thermometer. It is to be noted that the method is not applicable to the sterilization of india rubber tubing.

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* London *Lancet*, Jan. 5, 1898.

The above method of sterilization has been tested by dipping instruments into and filling in syringes with putrescent fluids from manure heaps and cultures which contained very resistant spores. The test cultivations which were made from these instruments and syringes after the sterilizing operations which have been described remained in all cases absolutely sterile. An incidental advantage of the method of sterilizing syringes by hot oil is that if the needles are sterilized in the hot oil before they are replaced in the case they are thereby effectually protected against rust.

Method of Emptying Air Out of a Syringe Without Contaminating the Outside of the Syringe with the Contents.

A convenient way of effecting this object is the following: A small bottle of any strong antiseptic solution is covered over with one of the rubber caps which are fitted on to test tubes to prevent the drying up of bacterial culture media. This bottle is held cap downwards and the needle of the syringe which is to be emptied of air is thrust through into the antiseptic solution. The piston of the syringe may then be pushed home until all the bubbles have been expelled without any fear of contaminating the outside of the needle or syringe. It is unnecessary to sterilize the outside of the rubber cap before puncturing it with the hypodermic needle, for the needle will be again quite sterile when it comes out from the antiseptic.

Method of Putting Up Antitoxin or Bacterial Vaccines in Such a Way that they May be Directly Drawn Off in an Aseptic Manner into a Hypodermic Syringe.

The method in which antitoxin is usually put up appears to be faulty in two respects. First, it is somewhat difficult to sterilize the chink between the rubber bung and the neck of the bottle. Secondly, inasmuch as it is impossible to get the needle of the syringe down to the bottom of the narrow mouthed bottles which are employed, it becomes necessary to pour out the fluid into some shallower vessel. This involves as an incidental inconvenience the sterilization of the vessel which is employed for receiving the antitoxin.

These inconveniences are perhaps most simply avoided by putting up the antitoxin in bottles which are fitted with stout close-fitting rubber caps in lieu of the usual rubber bungs. After the rubber caps have been placed in position they are to be rendered perfectly air-tight by dipping the neck of the bottles into a vessel containing sterilized and melted paraffin. The contents of the bottle can then be drawn off as follows: First, the outside of the cap is re-sterilized by dipping it either into a hot antiseptic solution or into the hot oil which has served for the sterilization of the syringe. Holding the bottle still in the inverted position the rubber cap is now to be pierced with the sterilized needle of the hypodermic syringe. The puncture which is thus produced serves only to admit air to the bottle. The needle is therefore now withdrawn and it is reintroduced into the antitoxin by puncturing the cap a second time. The contents of the bottle are now simply drawn off into the syringe.

This method of putting up antitoxin has now been tested in practice for some considerable time. It has answered satisfactorily even in the case of the antitoxin which has been sent abroad. The method has also been employed with success for putting up the bacterial vaccine, which has been used in connection with several considerable series of typhoid vaccinations. In these cases the bottle of bacterial vaccine was fixed in an inverted position in a clamp and the syringe was refilled time after time by simply puncturing through the india rubber cap. When a sufficiency of vaccine had been drawn off the outside of the cap was resterilized and was then recoated with paraffin.

Method of Preparing Aseptic Physiological Styptics.

The proposal which I put forward several years ago to utilize *physiological* and painless, in lieu of *escharotic* and painful, styptics in the arrest of hæmorrhage[1] has not yet been practically exploited. None the less physiological styptics are calculated to be of eminent utility not only on the battlefield, but also in the minor surgery of the household, and above all, in the treatment of severe epistaxis and hæmophilic bleeding. In these last cases, at any rate, the mediæval methods of arresting hæmorrhage by means of escharotic stypics would appear to be now no longer admissible.

So far as this neglect to take advantage of the proposed physiological styptics is not imputable to a lack of enterprise on the part of the manufacturing chemist, it has been, no doubt, due, first, to the fact that the method of preparation which was proposed was not a method that offered any absolute guarantee for the aseptic condition of the styptic; and, secondly, to the fact that no convenient method of testing these styptics was proposed.

The following method of preparing a physiological styptic would appear to offer the required guarantee for the asepticity of the preparation. Fresh and finely minced thymus gland is extracted for from twelve to twenty-four hours with from ten to twenty times its weight of a solution containing 1 per cent. of carbolic acid and 1 per cent. of common salt. An addition of 0.5 per cent. of calcium chloride *cryst.* is to be made to this fluid after it has been strained through a piece of sterile muslin. Lastly, the styptic solution is rendered very faintly alkaline. It is to be shaken up before use and is to be mixed with the effused blood in the proportion of about one part of styptic to ten of blood.

A less potent but an always accessible form of styptic may be very simply made by rubbing up a little finely pulverized chalk, preferably precipitated chalk (but prepared chalk or even whiting will do) with a very small quantity of vinegar or a trace of hydrochloric acid. This forms a very convenient application to bleeding gums or shaving cuts. It is also a suitable form of styptic to apply to any surface from which *actual* or *serious hæmorrhage* is taking place.

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[1] *The Lancet*, Feb. 25, 1893, p. 435, and *Brit. Med. Jour.*, 1891.

TREATMENT OF TABES.

Eulenburg (*Deut. Med. Woch.*, October 28, 1897) first refers to the new conception of tabes as a disease of the sensory neuron. At first the treatment of tabes was looked upon as useless. As regards prognosis each case must be individualized. Besides pursuing at one time a more rapid and at another time a slower course, the disease may become stationary even in its earlier stages, so that a relative recovery may be spoken of. This arrest of the disease may give rise to error in estimating the value of a given treatment.

Nothing is expected nowadays from derivative and revulsive measures, and the same may be said of the silver treatment. The improvement that may take place under treatment by electricity, by baths, and by the local application of heat or cold cannot be satisfactorily explained. The value of antisyphilitic treatment is difficult to estimate. The author agrees that a large percentage of sufferers from tabes have previously had syphilis, but syphilis is not the sole or essential cause of the disease. Thus antisyphilitic treatment cannot be described as a radical treatment. Relative recovery is not more common under antisyphilitic treatment than under other methods. Cases of tabes with previous syphilis may improve with or without antisyphilitic treatment. Harm may sometimes be done by injudicious antisyphilitic treatment. Eulenburg emphasizes the value of morphine and strychnine under certain circumstances in this disease. Potassic iodide, antipyrin, antifebrin, etc., are of uncertain value in the pains of locomotor ataxy. As regards so-called organotherapy, treatment by spinal cord extract and by Brown-Séquard's fluid has been tried. The author says that he has used spermin in subcutaneous injection in bad cases with considerable improvement. Nerve stretching ought never to be resorted to. Suspension, etc., may produce improvement, expecially in ataxia. The author speaks highly of Fraenkel's treatment of ataxia by compensatory exercises. Thus the ability to work may be preserved or even recovered. The question of sending patients to health resorts is next discussed; it must, of course, largely depend on the means of the patient.

BARNUM'S CIRCUS AND THE LANCET.

It cannot be gratifying to American "professional" pride to note that Barnum's circus has been quite as successful in England as was Buffalo Bill's Wild West show. The London *Lancet* even finds space for comment on some features of the show, as follows:

"Not the least interesting feature of the colossal show organized by Messrs. Barnum and Bailey at Olympia is the collection of 'freaks' which the industrious managers have been able to get together. That public interest in these creatures, whether human or belonging to some lower order, is very deep is proved by the tenor of letters which we now and again receive asking for explanations of the various physical phenomena manifested. We need hardly say that errors of development may produce extraordinary results and that the average 'freak' is simply an error of development, the curious or, it may be, monstrous appearances being as a rule easily comprehensible by students of embryology and fœtal structure. But there are two persons giving performances at Olympia who are able to perform feats which must certainly produce a very astonishing impression on the anatomical mind.

"One of these entertainers, whose name is Delno Fritz, is a sword-swallower, and asserts that he can swallow longer swords than have ever been swallowed before. We for our part never want to see any one swallow more rigid metal. To those who know the surface markings of the abdomen and the situation of the stomach it is little short of appalling to see this man pass a sword down his gullet until the hilt impinges upon his teeth and then withdraw the weapon and demonstrate by outside measurement that in the erect posture the point falls some inches below the usual line of the lower curvature of the stomach. What really happens, of course, is that Delno Fritz has learnt, consciously or unconsciously, to stretch the somewhat loose and elastic tissues between the lips and the cardiac orifice of the stomach, so that these tissues will lie along his blunted sword in a condition of extension, while a protruded chin assists in the prolongation of the pharynx. It should be added that the solidity of the weapon with which the feat is performed is beyond question.

"A second person in whom medical men must be interested is one Young Hermann, who can expand and contract his chest and abdomen at will to really remarkable dimensions. He is able to make a bona-fide difference of sixteen inches in his chest measurements and accordingly to snap chains and straps fastened across his thorax by the steadily extending pressure he is able to effect upon them. The alteration which he produces in his abdominal outlines are no less striking. By swallowing air and then effecting pressure upon it by contractions of the rectus abdominalis muscle, he can rapidly pass from the appearance of extreme corpulency to the appearance of horrible emaciation, the skin of the abdomen appearing in the latter case to lie against the spinal column. His extraordinary power of swallowing and inhaling air enables him to shift the apex beat of the heart many inches and otherwise to displace his viscera. The power of swallowing air is not exceedingly rare, but the extent to which Young Hermann possesses it is unexampled in our experience. It is probable that Joseph Clark, the celebrated posture-master of the seventeenth century, possessed the secret of this trick in addition to his unwholesome knack of dislocating many of his joints at will. It may be remembered that Clark's favorite joke was to go to a tailor to be measured with his right shoulder, say, much higher than his left, to return to fit the suit on with the protuberance on the other side, and finally to call at the shop and reject the clothes indignantly, having this time assumed a central hump. Young Hermann might amuse himself in a similarly ill-natured way if the inclination took him.

A New Method of Local Anaesthesia.—Since the discovery of the anaesthetic properties of cocaine, its sphere of usefulness has constantly broadened, and it has become one of the most serviceable drugs in the every day practice of the physician. Recently attention has been directed to a new method of employing cocaine, the aim of which is to facilitate its use and render it more safe and efficient. In devising this method, three objects have been kept in view: 1, to secure an absolutely pure grade of cocaine, free from all by-products; 2, to do away with ready made solutions which are liable to decomposition, and then lose their potency and become irritating; 3, to dispense the cocaine in such a form that fresh solutions of any desired strength can be prepared at a moment's notice. To accomplish these objects, it has been found advantageous to employ the cocaine in the form of discoids, each of which contains a definite quantity of the drug, without any excipient whatever. The amount of cocaine-hydrochlorate in each discoid is accurately determined by weight, and in consequence of their ready solubility, the discoids dissolve in a few drops of water. The physician, therefore, always has at hand the material for preparing fresh cocaine solutions, of any percentage strength desired. Thus, for instance, if he wishes to make use of a few drops of a 4 per cent. solution, all that is required is to dissolve 1-5 grain discoid in five minims of water, while larger quantities can be prepared in the same way. By proceeding in this manner, the physician is always informed as to the amount of the drug he is using in any given case, and unpleasant or serious effects are thus reduced to a minimum. For the induction of local anæsthesia in minor surgery, dentistry, diseases of the eye, ear, nose and throat—in short, wherever there is any indication for the use of cocaine—the discoids will be found the most eligible method of securing the beneficial effects of this remedy.

The South and Yellow Fever.—The numerous conflicting and in many instances ridiculous quarantine regulations formulated by State, county, and municipal authorities, and enforced oftentimes by excited and inexperienced men, aided in some cases by the shotgun, during the epidemic of yellow fever which has just prevailed in the Gulf States; the utter disregard of commercial and railway interests, and in the end the complete failure to arrest the passage of the contagion from town to town and State to State, form a telling object lesson, which must convince the stanchest supporter of State autonomy that the Federal government should take entire and complete control of quarantine in such diseases.—*Medical Record.*

Kryofine as an Antipyretic.—In an abstract of an article on the therapeutics of Kryofine, published in the February issue of Gaillard's, the precise meaning of the author, Dr. Bresler, was not conveyed in so far as the antipyretic effect of the drug is concerned, for Dr. Bresler made a statement (in German) to the effect that "the influence of Kryofine is one opposed to the production of fever; it not only acts to reduce a certain temperature, but also decidedly prevents a further rise in temperature when given at the time of day this usually occurs," etc.

VALEDICTORY LECTURE.

THE PROGRESS OF OBSTETRICS AND GYNECOLOGY.

A VALEDICTORY LECTURE

Delivered at King's College Hospital, London.

By W. S. PLAYFAIR, M.D., LL.D.,
Emeritus Professor of Obstetric Medicine at King's College, and Consulting Physician to King's College Hospital.

GENTLEMEN:—I have been asked to devote this lecture—the last which I shall have the privilege of delivering in connection with King's College—to a consideration of the advances which have taken place in the subjects which I profess since I assumed this Chair, now more than five and twenty years ago. I had hoped that the fact of this being my last lecture might have passed unnoticed; but, since it is not so, I feel that the subject proposed to me is an appropriate one, and the more so as my inaugural address was devoted to "The Progress of Obstetrics and Gynæcology." As time goes on it is well to take stock of our movement with it. But that I should undertake to give anything in the least like a comprehensive account of our gains in obstetrics and gynæcology in less than an hour would be an absurd and useless endeavor. I shall not attempt so impossible a task, but shall content myself with a brief allusion to one or two matters that I hope may prove of interest to you.

It is, I think, certain that there is no department of medicine or surgery the progress of which in recent years can in the least compare with that of which we can boast. That is because our subject is to a great extent a new one. When I came to this hospital, now five and thirty years ago, gynæcology was practically in its infancy. If you look at any book on the diseases of women of those days—I think Churchill or West were the ones most used—you will be astonished to find that the subjects which now chiefly occupy the attention of gynæcologists were altogether unknown. There is in them practically no allusion to most of the work with which we are now daily occupied. Even such everyday matters as ovariotomy were only beginning to be considered, and were damned with faint praise. Morbid states of the Fallopian tubes, such as pyosalpinx, salpingitis, and the like, now known to play so large a part in the causation of pelvic diseases, were unknown, and operative and curative procedures now employed every day were undreamt of.

It was in the year 1854 that I became a pupil of that wonderful man, Sir James Simpson, to whose initiative we may fairly ascribe much of the progress made within the last half century in the departments of medicine I have mentioned.

He was a man, take him for all in all,
We shall not look upon his like again.

Many have depreciated his work, have called him ill-balanced and impulsive, lacking in judgment and unreliable; and in a certain sense all this is true. But his boundless and contagious enthusiasm, his commanding personality, that infinite something about him which men call "genius," his sweet and lovable disposition, which made him never see anything but good in others who would admit no good in him, combined to make him a leader and a teacher such I have never seen equalled in the past and never expect to see in the future. His enthusiastic study of all advances in his favorite pursuits, and the energy and zeal with which he advocated new methods and treatments, many of which have passed into the limbo of things that are justly forgotten, founded a school of disciples who have since worked hard at subjects which before his time were almost completely neglected. I crave your pardon for this brief allusion to my honored master, since I am talking of ancient history unknown to most of you.

It is to my mind no objection to a man's work that all of it will not bear the test of time and experience. If that were always essential, who is there amongst us whose work would stand? Take, for example, Henry Bennet's book on *Inflammation of the Uterus*, which attracted a great deal of attention in its day. If ever there was a book which was thoroughly unsound, the views in which were completely untenable, and the practice based on them most pernicious, it is surely this. Yet who shall say that Henry Bennet's work did no good? It did at least this: it directed attention to diseases of the reproductive organs in women, it caused them to be recognized, studied and diagnosed, and in due course of time its errors were realized and its mistakes avoided. And so it is with many things which for a time received undue attention, as, for example, Graily Hewitt's extravagant views on uterine displacements, which yet had an element of good in them, and other examples which I might give, but which, perhaps, I had better not dilate on.

The lesson from all this is one sadly needed, but rarely acted on, and that is a little less dogmatism, and a little more charitable consideration for views which do not commend themselves to us.

I might fill up the whole of the time allotted to me, and it would not be unprofitably spent, if I were to address you solely on the confident, absolute and unhesitating condemnation passed by men who have no practical knowledge at all on the matters they condemn, on such mooted points in modern gynæcology, for example, as trachelorrhaphy, the use of electricity in gynæcology, laparotomy in pelvic inflammations, total extirpation and *morcellement* of the uterus, and many similar topics I could mention.

The well-known definition, "Orthodoxy is my doxy, and heterodoxy is other people's doxy," surely applies with remarkable force to all matters gynæcological. What I have said reminds one forcibly, and the remembrance should teach us a valuable lesson, of the days, not so very long ago, when the benches of the Royal Medical and Chirurgical Society rang with excited cries of "Down with these belly rippers," when Spencer Wells had the temerity to bring before it a paper advocating the performance of ovariotomy. Even after I came to this hospital I well remember urging ovariotomy in the case of a near connection of my own who had a perfectly simple ovarian tumor. She was taken to several of the most eminent surgeons of the day, all of whom discouraged it, one of them telling her husband that I was recommending what was "mere butchery."

If there is one lesson more than another I should like to leave behind me here, it is that of charitable consideration for the views of others, and deferred judgment.

If I were asked what is it more than anything else which has enabled obstetrics and gynæcology to take their present position, of course I should unhesitatingly say the principles of antisepsis. In directing attention to the changes which these have produced I am, of course, mentioning an obvious truism. In this hospital at least, which may make the proud boast of being, so far as London is concerned, the *fons et origo* of antisepticism, since Lister came to us from Scotland, no word need, perhaps, be said of it. You are so imbued with the knowledge of it that it is to you, I hope and believe, a second nature. To you the things I have seen before it became known would be absolutely incredible. If I were to tell you what I have seen from septic surgery in my early days in India, where I passed two or three years after I qualified, nay, even if I were to tell of things I have seen within these very walls in the way of abdominal surgery,

I could a tale unfold . . .
Would . . . freeze thy young blood,
And make each particular hair to stand an-end
Like quills upon the fretful porcupine.

I am not going to occupy your time by repeating the twice-told tale of what antiseptics have done for obstetric practice. That the very hospitals and wards which were, when I came here, hotbeds of puerperal septic disease are at this moment the safest place in the world for women to be delivered in is a very fairy tale of medical science which will always be remembered in connection with the time I am talking of.

It is worth while recalling in this connection a curious experiment made here just after I came, when a lying-in ward was established in what is now the Pantia Ralli. The mortality was so terrible that we had soon to close it, and the experiment of having a labor ward in a general hospital will, I hope, never be tried again; but such is the safety of antiseptic midwifery that if it were the results would, I fully believe, be very different.

It is a matter of deep regret that the mortality of ordinary domiciliary practice has not lessened with that of lying-in hospitals. This was conclusively shown only the other day in an interesting address by Dr. Cullingworth to the Obstetrical Society. It is certainly a preventable thing, and it should not be. But I am convinced that the blame does not rest with the medical profession. Those members of it who neglect antisepsis will certainly become fewer day by day as younger men, trained of late years, get into practice. If ever some proper and effective control can be established over the midwives or obstetric nurses, or whatever you choose to call them, who practice so largely among the poor—attending, it is startling to hear, more than half the confinements in the country—then, and only then, will the mortality of domiciliary practice approximate to the vanishing mortality of our lying-in hospitals.

But the gain from the extended use of antiseptics in midwifery is very far from being limited to natural labors. Several of the more serious conditions which were practically hopeless when I joined the hospital are now treated with a fair prospect of success.

Cæsarean section was formerly considered an operation which was almost certainly fatal. Therefore it was never resorted to except under the direst necessity and under conditions which practically precluded the hope of recovery. Now, once more from the extension to it of the principles of antisepsis, as well as from our experience in abdominal surgery, it is no longer the dreaded thing it used to be, but can be resorted to as an operation which affords a fair chance of recovery, the mortality in the hands of experienced operators being little more than that of some other abdominal operations constantly performed.

There is another operative procedure which had practically fallen into disuse, that of symphysiotomy, which has again been brought into prominence, and is now safely performed, but more in other countries than in ours, which enables us sometimes to avoid the horrid alternative of destroying the living fœtus. This, again, is the direct result of the safety arising from antisepsis.

One of the chief improvements in modern midwifery, however, is the enormous strides we have made in the treatment of that far from uncommon and most dangerous condition—extrauterine fœtation. Five and twenty years ago if an accoucheur was called to a patient in early pregnancy who was collapsed and moribund, he might, and probably would, have diagnosed the existence of a ruptured tubular fœtation with intraperitoneal hæmorrhage, but he would have had to stand helplessly by and see his patient die. Now he would without hesitation operate, with a fair chance of snatching his patient from the jaws of death, and of adding one more to the many cases which have thus been successfully treated.

Another not very dissimilar condition as to its effects, before practically hopeless—rupture of the uterus during labor—is now well within the hope of successful treatment.

These are some of the gains which have accrued from antisepsis—surely a remarkable record.

I have no intention of going over all that has been done within the last quarter of a century in midwifery; these are only some illustrations of our progress.

There is one subject, however, on which I feel called to say a few words, and that is the modern practice in protracted labor from uterine inertia, and that because it has been strongly attacked by my friend, Professor W. Japp Sinclair, of Manchester, in his recent address to the British Medical Association at Montreal.

When I joined this hospital, the old—and I venture to think the bad—practice was common of leaving women to drag on very many hours in powerless labor from an unfounded dread of assisting them by forceps. No doubt many of the more advanced practitioners were gradually shaking themselves free of it, but the text books all adhered to the old dicta. If you want to see what this practice led to, I would ask you to read the account of the labor and consequent death of the Princess Charlotte of Wales, which I have introduced into the more recent editions of my book on midwifery. You will there see how that gifted Princess's life was sacrificed to thoroughly bad midwifery. Had it not been for this, our present gracious Sovereign would in all human probability never have come to the throne. The extent to which the dread of instrumental interference was carried may be judged of from the fact that in the Rotunda Hospital at Dublin, between the years 1786 to 1793, Dr. Clarke, the master, used the forceps only 14 times out of 10,387 deliveries, and during the mastership of Dr. Labbatt (1815-1822), out of 21,867 births there is no record of the forceps having been used in a single instance.

The first edition of my book on midwifery was published in 1876, and I believe it to be the first systematic treatise in which the more rational, and I think now generally adopted, practice was openly advocated. This I did in fear and trembling, and deemed it necessary to offer a sort of apology in the preface. Happily my fears in this respect were not justified, the views I enunciated were generally approved, and the practice inculcated, with all proper reserve and safeguards as I maintain, was generally adopted.

It is very likely indeed that the pendulum has swung too far in the opposite direction. Injudicious practitioners abound everywhere, but apparently far more abundantly in and about Manchester than in London, for certainly here I do not come across the enormous number of lesions which Dr. Sinclair attributes to the use of the forceps, forgetful of the fact that the cervix used to tear, and the perineum to lacerate, long before the forceps were heard of. He forgets also, or at any rate minimizes the fact, that in the good old times he so much laments lesions were abundant from not using the forceps, which are hardly ever seen now, such as vesico-vaginal fistulæ, which are not made nowadays because the forceps are more frequently used. So much is this the case that it is probable that most of the gentlemen I am addressing have never even seen the operation for their repair. Dr. Sinclair, however, rather lets the cat out of the bag when he tells us that in the quarter of a century before the introduction of antiseptics, which is practically the quarter of a century before I assumed this Chair, Dr. Matthews Duncan, whom he very properly takes as a type of the obstetricians of that time, and his contemporaries "were long busy in repairing the characteristic ancient injury of vesico-vaginal fistula, for they had the accumulated misery of a whole generation of women to cure and ameliorate." The "accumulated misery" of generation after generation of women living before Marion Sims's great discovery was left uncured and unameliorated.

Nor does Professor Sinclair even mention one of the great glories of modern midwifery resulting from the practice he condemns—that is, the practical abolition of the operation of craniotomy, formerly so common. It would be a curious study to inquire what happened with regard to that in the *tempora acta* in the hands of injudicious practitioners, who I suppose existed then as now. I have heard of one distinguished obstetrician at least, celebrated for his hostility to "progressive" practice, who, when called in to a bad midwifery case, exclaimed in emphatic Doric, "Man, what's the deeficulty—dang out the brains!" I wonder how many lacerated cervices or torn perinea should be taken as the fair equivalent of even one human life saved from the deadly perforator?

Professor Sinclair sets himself to prove a most extraordinary thesis; let me quote his own words: "A thesis which I shall endeavor to maintain to-day is that gynæcology has become so largely surgical as the direct results of surgical interference in midwifery practice; the accoucheurs are the providers of material for the gynæcologist;" and, again, "for the material of his ordinary daily labor the gynæcologist has to look to the accoucheur." Surely these extravagant statements cannot be seriously meant? I was under the impression that the surgical expansion of gynæcology was due to such operations as ovariotomy, the removal of diseased appendages, vaginal and abdominal hysterectomy, colpotomy, and the like, which the wildest imagination cannot say are the production of the accoucheurs. If Dr. Sinclair had ben econtent to preach against injudicious excess in operative midwifery, I should have heartily agreed with him, and welcomed his address as sure to do good. But he does far more than that: he advocates in effect, if not in so many words, return to the old bad times and disastrous practice against which, as one of the teachers and writers of the text books he so much blames, I feel bound to raise my voice. I do not, however, intend this as an answer to his criticisms; that I have attempted more at length in the forthcoming edition of my book on midwifery, but as a passing allusion to a topic of current interest.

That gynæcology is becoming year by year more and more surgical is a fact that cannot be denied. Indeed, nowadays a gynæcologist who cannot operate or handle a knife, or is not allowed to do so by the rules of his hospital, if such fossil institutions still exist, is very like a modern soldier prohibited from using gunpowder.

If a gynæcologist must be either a surgeon or a physician, then in future he must certainly elect to be a surgeon. But on this I should like to say a few words, and to make them intelligible it is necessary to be a little retrospective.

Many of our London hospitals are very ancient institutions, and the more modern ones are modeled upon them. When they were founded midwifery was only practised by women, and gynæcology did not exist; so that the staff was naturally formed of members of the old corporations of physicians and surgeons only.

As time elapsed it became necessary to appoint obstetric physicians, who came in as interlopers, who were "neither flesh, fowl nor good red herring." As they taught midwifery only they generally belonged to the College of Physicians. As gynæcology developed, the necessity arose for these gentlemen to operate. The first Fellow of the College of Physicians who had the boldness to shake off the shackles of precedent was the late Dr. Tyler Smith, of St. Mary's, who performed ovariotomy, and has left a lasting name for himself in connection with the operation, since he introduced into this country the intraperitoneal treatment of the pedicle. I believe, although it was before my time, that he gave great umbrage by doing so.

Every one who has the honor to belong to the College of Physicians is proud of it, and fond of it, but it is a very ancient institution, and like other ancient institutions it is not free from traditions and prejudices that are not altogether wise. Moreover it has a good many Fellows who are by nature fine old crusted Tories, whom every one loves and respects, who would like to keep the College very much as it was in the time of Henry VIII. Possibly some of these may still object to obstetric physicians operating when they have an aptitude for doing so, and have such work to do. But if such views are still held, as is not unnatural, they have never done any practical harm. Under the judicious guidance of its successive presidents, the College of Physicians has been as progressive as such an institution can be expected to be, or, indeed, in my opinion, ought to be. From it, at least nowadays, no difficulties arise. Of the views on this subject of one of the wisest and most liberal-minded of its presidents, the late Sir Andrew Clark, there can be no doubt, for I have often heard him say that a man should do exactly what he thought himself most capable of doing: and I have had practical proof of it by having on several occasions operated on gynæcological cases he sent to me for the purpose.

But I am told, for I have not myself seen it, that there is a cloud, at present no bigger than a man's hand, rising in another quarter. I am given to understand that our friends the hospital surgeons—or some of them—dismayed, let us hope by the operative successes of their obstetrical colleagues, are beginning to clamor for protection, and are agitating for the enactment of a rule that no obstetrician is to operate unless he is a Fellow of the Royal College of Surgeons.

Now see for a moment what a grievance this would be. Take the case of a comparatively young obstetrician who has qualified by taking the very high diplomas of M.D. and M.R.C.P. Is such a man to be suddenly debarred from following the career for which he has prepared himself by being called upon, without previous warning, to pass the difficult examination necessary for admission to that very limited body, the Fellows of the College of Surgeons?

A man's skill as an operator depends on his brains and on his fingers, not on the letters he writes behind his name. I know Fellows of the College of Surgeons whom I would not trust to vaccinate a baby, and I know Fellows of the College of Physicians to whom I would unhesitatingly confide any operation they chose to undertake; and, *per contra*, if I were called to choose as obstetric physician to a hospital between a man who was an M.D. and F.R.C.P.Lond. whom I knew to be an inferior man, and a man who was a simple M.R.C.S. whom I knew to be a superior man, I would certainly select the better man of the two, irrespective of his qualifications.

If such a rule were to be enforced it would at once lead to a divorce between obstetrics and gynæcology. These subjects are each so large that I think it likely that such a separation will eventually take place, to the advantage of both, by mutual agreement; but we are not prepared for it as yet, and to force it on by such an enactment would completely dislocate the teaching machinery of our schools.

We boast of belonging to a country which has been wise enough to adopt free trade in commerce, yet we talk of adopting a protective measure which could not find a parallel in any other country of the world, in none of which do such mediæval distinctions between different branches of the profession exist.

Some of our more conservative friends tell us that we may with propriety interfere surgically in anything occurring in the course of our midwifery practice, but that the moment any surgical interference is required in gynæcology the case must be handed over to the surgeons. I do not envy the sensations and position of the accoucheur, nor, for the matter of that, of his patient and her friends, who, in deference to this opinion, has acquired no surgical experience, when suddenly called upon to cope with such an obstetric emergency as a Cæsarean section, or a symphysiotomy, or a ruptured tubular fætation, or a ruptured uterus.

The plain fact is, and it is one which cannot be got over, that the evolution of medicine has produced a class of practitioners who are and must be "physicians and surgeons" in a higher sense, and the sooner sensible and unprejudiced men reconcile themselves to their existence the better.

I have been tempted to this somewhat polemical discussion because it is one of great moment, and it is well that a senior member of the obstetric branch should have his say on behalf of his junior colleagues, although he has himself no longer any personal interest in the matter. And I may speak all the more plainly because I have never myself experienced any difficulty of the sort, and have always received the most kindly, generous and ungrudging assistance from all my surgical colleagues in anything of an operative nature which I have thought it right to attempt.

Do not suppose for a moment, however, that in arguing in this way I am advocating overmuch operative interference in gynæcology. None of you, I feel sure, to whom I and my work are well known, will accuse me of want of caution in that respect. There is, I am constrained to admit, a good deal of unwise excess amongst us which is much to be deprecated. As we have to acknowledge that injudicious practitioners have erred in carrying out what is, on the whole, a right principle in the management of protracted labor, so also we have to acknowledge that injudicious practitioners have interfered surgically far more than most of us think justifiable, and in a way that brings discredit to themselves and needless risk to their patients. *In medio tutissimus ibis* is the wise and safe principle which should guide you in shaping your course.

In the opposite direction we have to deprecate the tinkering practice adopted by the ultra-conservative gynæcologists who would shun surgical interference altogether, which was caustically described, not without some reason, by my friend, Professor Clifford Allbutt, in an often quoted passage in which he talks of the patient as "being entangled in the net of the gynæcologist, who finds her uterus, like her nose, is a little on one side; or again, like that organ, is running a little, or it is as flabby as her biceps, so that the unhappy viscus is impaled upon a stem, or perched upon a prop, or is painted with carbolic acid every week in the year, except during the long vacation, when the gynæcologist is grouse shooting, or salmon catching, or leading the fashion in the Upper Engadine."

It is difficult to say which sort of error is eventually worse for the patient. It is to be feared that one or other of them will be met with until the halcyon days arrive when the possession of a diploma provides its owner with judgment that never errs, and enthusiasm so well regulated that it never leads him astray.

I have left myself no time, I regret to say, to direct your attention to our gains in gynæcology during the years we have under review. I can only make a mere passing allusion to some of them, but they are no less remarkable than in obstetrics, and they have practically all arisen also from the great principle of antisepsis which has done so much for midwifery.

One note of modern gynæcology which is remarkable is the increasing favor which the treatment of pelvic disease of the vaginal route is finding. Things are possible now, and with comparative safety, previously undreamt of. Thus malignant disease of the uterus, formerly practically left to run its course unchecked, can now be dealt with, if detected sufficiently early, which is unhappily often not the case, by the partial or total extirpation of the diseased organ and with a reasonable hope of success. Then, again, certain diseased conditions of the appendages may also be treated by this route with less danger than by abdominal section. So also some of the most troublesome cases of pelvic inflammation following on childbirth, or on morbid conditions of the tubes, are being thus dealt with with increasing frequency and success; and so likewise are certain diseases of the uterus, such as small fibromyomata, old-standing displacements producing serious symptoms, and other conditions which I merely mention without any expression of opinion.

Many other topics suggest themselves, some of them involving most vexed questions, such as the treatment of fibromyomata by hysterectomy; the removal of the appendages by laparotomy for various diseased conditions, or, unhappily, sometimes, for no diseased conditions at all; the treatment of pelvic inflammations by abdominal section, and many others which cannot even be mentioned.

One subject, however, I cannot pass over, as it has always interested me much; that is, the possibility of treating systematically and successfully the strange and manifold neurotic symptoms which so often shipwreck the lives of women, and reduce them to a state of chronic invalidism previously quite hopeless. That cases of this sort, unhappily so common, can so often, when properly managed, be restored to health is, in my judgment, one of the greatest gains to practical medicine in the last quarter of a century. This is, perhaps, not strictly a gynæcological matter, but it is often so closely connected with it that this passing allusion to it may be pardoned.

I hope that even these few words may prove to you that gynæcology has not been at a standstill. It is my firm conviction that the more scientific basis on which it is being placed by pathological, histological and bacteriological research will ere long give it a position which it has hitherto lacked, as is not unnatural in a subject of comparatively recent development.

And now, gentlemen, I cannot conclude without a word personal to myself. It is just thirty-five years since I came to London to seek a livelihood, as so many of my countrymen have done since the time of that "high and mighty Prince," James I of England and VI of Scotland. It is not an exhilarating thing to put up your brass plate in a city such as this, in which you could count your acquaintances on the fingers of one hand. I was greatly encouraged when, in the same year, the Council of King's College elected me to be assistant obstetric physician to this hospital. I may say of it, and I say it with the deepest gratitude, that I was a stranger and it took me in. In retiring from the active work in connection with it, which for so many years has been the chief occupation and interest and pleasure of my life, it would be a comfort to me if I could carry with me the conviction that the generous confidence thus shown to an unknown young man has not been entirely misplaced. It is a painful thing to say farewell. I cannot do it better than in the words of a prayer often offered up within these walls: "God bless King's College and King's College Hospital, and all connected with them."

PICRIC ACID IN ECZEMA.—Aubert (*These de Paris*, No. 34, 1897) says that speaking generally picric acid is indicated in those forms of eczema in which the inflammation is acute and superficial, and where the lesions are mostly epidermic. The keratoplastic action of the remedy cannot display itself in the chronic forms of eczema accompanied by induration of the skin and particularly by epidermic thickening; picric acid is incapable of modifying these chronic lichenoid eczemas. On the other hand the keratogenic properties of the agent find an excellent field of action in acute eczemas with swelling of the integument, superficial ulceration and weeping. Under its influence the inflammation rapidly subsides, and the acid forms on contact with the ulcerated and oozing surfaces a protective layer composed of coagulated proteid substances and of epithelial *debris* under which healing takes place rapidly. Picric acid has the further advantage that it immediately stops itching; this effect is produced in chronic as well as acute form of the disease. In acute eczema a cure is effected in from ten to fifteen days. The method of use is as follows: A solution of 12 g. of picric acid in one liter of tepid boiled water is painted over and somewhat beyond the affected surfaces; the parts are then wrapped in lint wrung out of the same solution, and over this is placed a covering of cotton wool. It is important that oiled silk should not be used, otherwise maceration of the surface is pretty certain to occur. The dressing should be renewed every two or three days. Brousse recommends that before the picric acid is applied the cutaneous surface should be washed with a solution of boric acid.

SOME SUGGESTIONS FOR THE ORGANIZATION AND INTERIOR ECONOMY OF A STATE MEDICAL-MILITARY SUBDEPOT IN WAR TIME.[1]

By JOHN VAN RENSSELAER HOFF,

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"History is philosophy teaching by example." We have but to review it, and then glance about us at the current happenings, to be convinced that in spite of our boasted civilization man is instinctively a fighting animal, and war is always a probability.

While civilization has not eradicated and never will eradicate this instinct, it has so advanced our knowledge of things that war is no longer a mere question of the man—though this is the largest factor—but of the material, of the organization, indeed, of the numberless inanimata which make a part of the art of war.

These are not the creation of a moment, but follow careful preparation and accumulation, the results of experience, study and opportunity.

We of the sanitary department have no small share in this work; indeed, it is an ever-increasing share—for civilization, while unable to subdue the fighting instinct, demands that the fallen shall be more and more carefully conserved; therefore, it is important that our preparations ab initio be duly weighed and our plans determined upon before the event of hostilities.

In this connection we may well consider what will fall to the military authorities of the States, and our historical examples will be drawn from the war of secession.

During the years 1861-1865 the total strength of the armies of the United States was 2,143,855,[2] recruited by the States as follows, viz.:

Maine	49.635	Michigan	76.218
New Hampshire	29.150	Wisconsin	73,865
Vermont	26.355	New Mexico	4,432
Massachusetts	98.803	Missouri	78,035
Rhode Island	13.688	Kansas	16,624
Connecticut	45.181	Nebraska	2.175
New York	334.784	Iowa	68.118
New Jersey	44.398	Minnesota	18,554
Pennsylvania	214,427	California	15,725
Delaware	7.888	Oregon	1,773
Maryland	24.954	District of Columbia	6.546
West Virginia	27,518	Colorado	3,697
Ohio	225,669	Nevada	1,080
Kentucky	43.550	Dakota	206
Indiana	150,177	Washington	964
Illinois	210,043	Tennessee[3]	26.394

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[1] To be presented at the next meeting of the Association of Military Surgeons, United States. Printed in the *Medical Record.*

[2] Fox says that reduced to a basis of a three-year term the total strength of our army was 2,327,917.

[3] Small numbers from other States make up the total.

Of this number at least six per cent.[4] was engaged in the sanitary work of the armies.

Strength of Sanitary Corps.

In other words, 128,631 medical and other officers and enlisted soldiers were on duty in the medical department between the fighting-line and the hospitals at the base of operations. This number is exclusive of the personnel of the various military general hospitals scattered throughout the country far away from the theater of operations, and differing very little from general hospitals in civil life. These hospitals contained, in 1864, 318,000 beds, and their personnel numbered 31,860 officers and men.

For the purposes of this paper we have to consider only so much of the sanitary personnel as may be called "military," viz., that part which is in immediate contact with the combatant forces in actual service—the part which, during the war of 1861-65, was mostly detailed from the combatant ranks in numbers which will never be known, and which probably represented a considerable portion of the forty per cent. difference between the paper and fighting strengths of our armies.

In any future war we may have, it is hardly to be presumed or desired that the requirements in men of the medical department will be met by depleting the fighting-line; so it is reasonable to assume that this department will be called upon to recruit and train its own personnel, and this, of course, will be done in large measure through the medical departments of the respective States.

If this is to be the case, and if the requirements of our last war be an index of future wars as to the number of sanitary recruits to be organized and instructed, it goes without saying that there must be some place where such preliminary organization can be made and such instruction given. This place may be called the State medical-military subdepot.

State Rendezvous.

To meet the requirements of active service, each State will necessarily have a place of arms where recruits can be rendezvoused, outfitted and drilled; where the required material can be gotten together; where companies and regiments can be organized; and where, finally, the State recruit, after being duly "mustered in," will become a soldier of the United States.

It need hardly be said that this place of arms should be located conveniently near the State's center of population, and that it should be sufficiently extensive, both in area and plant, to meet all of the very important physical requirements of such a place under such conditions.

Cogent arguments might be advanced in support of the proposition that such an establishment should even now be in the possession of every State, instead of the comparatively few which thus far have been able to appreciate its advantages. Nor would it be useless to-day, when as yet war is only in the air, or even in times of profoundest peace, for it would serve admirably for the location of the annual camps of instruction now so generally established among our State troops.

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[4] See articles on sanitary organization by the writer, published in the various proceedings of the Association of Military Surgeons, United States.

This place of arms would in war times become the State general recruiting-depot, with a thorough military organization, and it is here the medical subdepot should be established. The organization of the general recruiting-depot cuts no figure in this paper, except so far as it touches the organization of the medical subdepot, which latter should be as nearly as possible independent. The subdepot should have a distinct and separate organization, the personnel of which, of course, would be under the orders of the depot commander (probably a general officer), though for administrative purposes only. The interior economy of the subdepot, the instruction of the men—in fact, everything pertaining to the sole object of the organization, the making of the sanitary soldier, should be in the hands of the subdepot commander—a medical officer—under the direction of the surgeon-general of the State.

Since we so emphatically claim the direction of the medical subdepot, we are under obligations to suggest some practicable plan for its organization and some scheme for its management. A very general consideration of these points is the raison d'être of this paper.

Permanent Hospital at Recruiting-Depot.

As the medical department must of necessity provide for the care of the actual sick—an ever-present entity—of the entire command, the first thought must be given to them, and temporary hospital accommodations supplied at the earliest practicable moment for at least two per cent. of the probable garrison. This so-called field hospital, of canvas, should be followed as soon as possible by a more permanent structure. Pari passu with the permanent hospital, there will be erected quarters for officers, barracks for men, storehouses, stables, bakery, mess hall, etc.—the various buildings pertaining to any community, be it civil or military.

Happy the State which, even though it has not these buildings, has officers so far-seeing that plans and specifications for them have already been prepared and filed away for instant use when the emergency arises which requires it. If all these matters have been fully anticipated and prearranged so far as possible, it is not to be doubted that the necessary plant could be established on a comfortable working basis in thirty days.[1] In the meantime the permanent personnel could be assembled under canvas.

Work of Medical Subdepot.

The work of the medical subdepot for which this more or less permanent personnel must be provided is to be considered under two heads, viz: 1. The care of the sick of the garrison. 2. The instruction of recruits for the hospital corps.

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[1] On July 8, 1894, the plans and location of the great Japanese base hospital at Hiroshima were approved; on the 30th of that month the hospital, consisting of ninety-six separate buildings, capable of accommodating 2,555 patients, was completed.

The duties will necessarily be both administrative and executive. A word as to the meaning of these terms. In military parlance, administration means the direction or management of a body of troops. The administration formulates the regulations and orders to govern the command, which the troops execute.

The administration of the subdepot will require beside the commanding medical officer, several other officers, non-commissioned officers and private soldiers of the hospital corps, all of whom will be essential to its successful working.

The hospital department, capable of permanently housing two hundred patients, with canvas for an additional two hundred, will require a numerous personnel hereafter to be considered.

The department of instruction will require approximately one officer to every fifteen men and one non-commissioned officer to every five men.

The details of the foregoing outline of our proposed subdepot may best be illustrated by assuming conditions quite likely to occur in any future war.

The latest available authority gives the population of the State of New York as 7,152,834, of which number 1,000,000 men, more or less, may be assumed to be of the fighting age (eighteen to forty-five).

A Typical Case.

During the war of 1861-65 this State furnished fifty-eight per cent. of its fighting population, and undoubtedly would do quite as well in any future war of equal magnitude. But to remain well within the bounds of probability, we will assume that New York's contribution to the next war will be 500,000 soldiers. We have already seen[2] that of this number six per cent., 30,000 men, will be required by the medical department. Should the war continue three years, we may safely estimate that the proposed medical subdepot of that State will have a probable average monthly strength of about one thousand men, exclusive of the sick of the station. Upon this estimate the organization of the medical subdivisions would, mutatis mutandum, closely approximate those of a regiment of the line.

War having been declared and requisition made upon the authorities of New York for that State's proportion of the number of soldiers deemed necessary by the President of the United States, among a thousand and one other orders, presumably even to-day carefully prearranged, one issues from State headquarters directing Colonel ———, assistant surgeon-general, New York, to proceed without delay to the general recruiting-depot, and there establish the medical subdepot. The objects of this special establishment are, as heretofore stated and as doubtless he will have been informed, the care of the actual sick of the entire depot and the preliminary organization and training of the sanitary personnel of the State's recruits.

Colonel ———'s special instructions, which doubtless he has received from the surgeon-general of his State, inform him that he is expected to select his own subdepot staff from among the officers ordered for duty there, to organize a station hospital, and the necessary number of companies of instruction. If the State has anticipated the moment of necessity therefor and established an adequate plant, or even if it has a detailed paper organization for the proposed subdepot, the responsible officer on the ground will be saved endless trouble. If, however, nothing has been done, he will of necessity have to start ab initio.

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[2] "Outline of a Scheme of Military Sanitary Organizations," Proceedings of the Association of Military Surgeons, United States, 18,7.

It is quite apparent that the first step out of chaos a commander can make is in the organization of his staff and the distribution of its duties, thereby leaving him free from the numberless details which would divert his attention from more important matters. Hence Colonel ——'s first duty will be to organize and locate the administration.

It may be assumed that the State military authorities will have so far anticipated the personal requirements of the proposed organization as to have directed the following, or as many of them as practicable, to report at the earliest moment, viz.:

Administration for Subdepot.

Administration—1 lieutenant-colonel, medical department, executive officer; 1 captain, medical department, adjutant and medical supply officer; 1 captain, quartermaster's department, quartermaster, subsistence and ordnance officer; 8 non-commissioned officers (3 hospital stewards, 3 acting hospital stewards, 1 quartermaster's sergeant, 1 commissary sergeant); and the necessary number of private soldiers as clerks, artificers, orderlies, drivers, conservancy, cooks, bakers, waiters, etc., probably about fifty—to be determined as the organization develops.

Upon their arrival at the station the officers are at once assigned to the indicated duty, and as many non-commissioned officers and men as deemed necessary are detailed to the respective departments.

In the meantime the State authorities having determined the probable average strength of the garrison and notified the medical authorities, the first consideration of this department in loco is to provide hospital accommodation for the estimated sick of the command, which, as we know, will certainly not be less than two per cent. of its total strength.

Quartermaster's Supplies.

Assuming that the average garrison will be ten thousand, the medical officer commanding the subdepot directs his quartermaster to require at once for tentage and other quartermaster's supplies to accommodate two hundred patients, say: hospital tents, complete, 54; wall tents, complete, 9; common tents, complete, 20; together with the necessary cooking and heating material, fuel, lighting, forage, horses, harness, ambulance and other wagon, clothing, equipage—in fact, everything except medical supplies, ordnance and subsistence. Each tent should be floored with tongued and grooved flooring, and properly heated and lighted.

No department is more important than the quartermaster's; it is the omnium gatherum, from which one seeks everything that cannot be obtained from the very special supplies furnished by the other departments.

At the same time the officer in charge of medical supplies is directed to require for furniture, bedding and other interior fittings; for medicines, dressings, surgical instruments and appliances, special-diet stores, etc.

The commissary officer arranges for the subsistence of the soldiers actually on the ground, and makes all preparations to meet the ever-increasing demands upon his department, which least of all can be ignored.

With the temporary station hospital thus prepared, the subdepot will be in admirable position to meet the requirements of the sick of the station, so soon as the personnel of the hospital can be assembled, viz.:

Nine medical officers (1 major-surgeon commanding, 2 major-surgeons, 3 captain assistant surgeons, 3 lieutenant assistant surgeons); 64 non-commissioned officers, men, H. C. (2 hospital stewards, 5 acting hospital stewards, 35 nurses, 4 cooks, 9 attendants, 9 medical officers' orderlies).

Pari passu with the temporary arrangements above outlined, plans and estimates will be prepared and contracts let for the construction of a more or less permanent hospital building of two hundred beds' capacity. This, with the temporary canvas hospital in reserve, will meet all demands that the sick of the station are likely to make upon it.

The probable needs of the sick having been fully anticipated, and so far as possible provided for, attention may now be turned to the other important feature of the subdepot—the department of instruction.

We have heretofore seen that, in addition to the sick of the entire general recruiting-depot, the medical subdepot would have an average strength of about one thousand officers and men of the sanitary corps, the object of their assembly being their organization into and training for the various sanitary units required by an active army.

Sanitary Units of the Active Army.

These units are: 1st, the station hospital; 2d, the ambulance companies of the hospital corps; 3d, the field hospitals.

Assuming that any man well trained in the work of the above organizations will be able to do his part in the regimental detachments or in the base or other military hospitals, such will need no further representation at the training-school.

The personnel of the administration and the station hospital having been assigned, there are left of the estimated strength of the subdepot about nine hundred officers and men to be organized into ambulance companies and field hospital detachments.

We have heretofore shown[1] that each ambulance company requires eighty-eight officers and men, and each field hospital sixty, including in both cases the transport personnel. Based upon this there could be organized six ambulance companies and six field hospitals.

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[1] The personnel should be distributed as follows: For each ambulance company, 3 medical officers (1 major surgeon commanding, 1 captain assistant surgeon, 1 first lieutenant assistant surgeon); 1 quartermaster (first lieutenant); 16 non-commissioned officers, 2 buglers, 2 artificers, and 64 privates, H. C. For each field hospital, 3 medical officers (1 major surgeon commanding, 1 captain assistant surgeon, 1 first lieutenant assistant surgeon); 8 non-commissioned officers, 1 artificer, and 48 privates, H. C. See Proceedings of the Association of Military Surgeons, U. S., 1897, p. 437 et. seq.

Quarters for Subdepot.

These organizations must, of course, be properly quartered. Tents will meet the early requirements very well, but would prove expensive for prolonged use. In addition to those for the station hospital, more or less permanent structures must be provided, as follows:

One administration building, containing offices for the commanding officer and staff: I storehouse for medical, quartermaster's, ordnance and subsistence supplies; 1 stable and wagon shed; 6 barracks for ambulance companies; 6 barracks for field hospital detachments; 1 mess hall, kitchen and bakery; 1 soldiers' exchange building; 1 building for officers' quarters.

It will be observed that no provision is made for separate quarters for individual officers, nor is it believed that under the conditions such will be necessary.

Having so far as possible provided for the material wants of our proposed corps, let us now briefly consider what means shall be adopted to lay broad the foundation of discipline, training and instruction which is to convert the crude recruit into the finished sanitary soldier. Much depends upon a proper beginning. If officers and men can be given a comprehensive idea of what they are expected to do, even though ignorant of the nice details, they will be by so much more efficient; add to this practice tinctured by zeal, and perfection will ultimately be attained.

Any one who reads even only what is here written must be convinced that there is something more to be done by the civil practitioner of to-day, who to-morrow may follow the drum, than pack his valise and join the procession. His knowledge as a physician is, of course, a sine qua non; but not so very far behind this is that knowledge which will enable him to supplement his own hands by those of others, and thus and thus only will he be able properly to care for the numberless sufferers thrust upon him within a day or even an hour. Nor is this all, for the conditions under which these sufferers must be treated are so different from those which obtain in civil life that his practice must be modified accordingly.

Revenons à nos moutons. Besides the general administration necessary to an aggregation of military units, each unit has within itself an administration which regulates the interior relations of its individual members. In a company this administration is represented by the officers and non-commissioned officers. The immediate commander of a unit is held responsible for the efficiency of his command, and to promote this efficiency he is given a certain number of assistants, who in military parlance are known as officers—commissioned and non-commissioned—whose duties within certain limitations he prescribes. Wagner says: "The most efficient armies are those in which the captains are given the greatest latitude in the methods of instructing and providing for their companies, and held to the most rigid accountability for their good condition and military efficiency."

Our proposed sanitary units must be organized on military models as above outlined, and the commanders thereof must be held to the same accountability. Unfortunately we have as yet no sanitary model and no standard other than that of the line.

To Organize a Sanitary Company.

Since such is the condition of affairs, how would a medical officer proceed who had received orders to organize and command an ambulance company? A military body is to be hewn out of some eighty or more intelligent citizens, most of whom will have no knowledge of what is expected of them. His first step would be to make his cadre or framework. Doubtless two or three physicians who had been appointed officers, and who will make up in zeal what they lack in knowledge of the work in hand, have already reported to the company commander; these, with the senior non-commissioned officer—whom the commander selects from among the men and who is practically the company adjutant—form the foundation of the frame, the superstructure of which is the remaining non-commissioned officers. Considering the work and equipment of this company, there is room in it for a non-medical officer—who might be called the quartermaster—who would rank as a first lieutenant and have charge of the property and transportation.

The frame having been completed, no matter how temporarily, the details are to be fitted therein. The company should be divided into two platoons, each under a medical officer, and a transport detachment, the latter to consist of 3 non-commissioned officers, 2 artificers (1 blacksmith, 1 saddler), 1 bugler and 17 privates (14 drivers, 1 cook, 2 supernumeraries), under command of the quartermaster.

It may be that the details will not at first fit the frame with accuracy, but they will do so at least approximately, and, in due time, with judicious trimming, perfectly.

As new men join the company, they can at once be assigned to one or another of the subdivisions and fall into their proper places.

Organization of Field Hospital Detachments.

The field hospital detachments will, mutatis mutandum, be arranged on the same lines—the sixty or more individuals constituting such being so subdivided as best to accomplish their work. The transport detachment with this organization will consist of 4 non-commissioned officers, 1 artificer (blacksmith), 12 privates (10 drivers, 2 supernumeraries).

Thus far we have provided a place of rendezvous and a habitation. We have anticipated the material requirements of the men of the proposed sanitary corps as to food, clothing and equipment, and we have assigned them to organizations. It now remains for us to consider the best method of discipline, training and instruction we can adopt to fit them for their work.

It may be safely assumed that, for the most part, the recruits assigned to the hospital corps will have had some training in civil life as druggists, clerks, nurses, mechanics, hostlers, cooks, etc., which would cause their selection for this special corps and more or less prepare them for its peculiar duties. This, added to the fact that "with intelligent and zealous volunteers discipline becomes mainly a matter of instruction and guidance," will make a well-considered scheme of training comparatively easy of execution.

In the beginning of hostilities it is not probable that any State will be able to hold its men for more than one month's training, when it will be called upon to send complete organizations into the field. Later, when a sufficient number of sanitary units have been supplied, it will only be necessary to keep up their strength, and the units of instruction will become more or less permanent, the officers and men attached being detached when required.

Military Training Required.

The training of the sanitary soldier must be military as well as technical, for it goes without saying that he must be a soldier, thoroughly disciplined and especially loyal to his duty. His work is most frequently done upon his own responsibility and away from the watchful eyes of his superiors; moreover, it is often done under circumstances of extreme danger, without the support of "touch of elbow" and the comforting thought which the fighting soldier has that, come what may, he can "give as good as he gets."

Any one who thinks that a man without a gun cannot be a soldier, even though he does and dares all that any man can, is hardly in accord with the public sentiment which responded so warmly to the story of Piper Findlater at the charge on Dargai Ridge.

True discipline being the object sought, certainly no method of its attainment can be equal to the military method, since this is the concrete result of experience in discipline from the earliest times even until to-day. Therefore, our recruit must be trained as is any other; he should be carefully "set up" and thoroughly drilled in the school of the soldier and the company, so that he will understand and be able accurately to execute all the movements therein described. He should be taught the manual of arms and the use of the rifle, "for, though he will ordinarily neither carry nor use firearms, it is held that no man can be a soldier who is unfamiliar with them;" moreover, it is universally recognized that nothing so quickly teaches unquestioning and ready obedience to orders as frequent exercise in the manual of arms. There is something seriously suggestive about a rifle that does not attach to apparatus for light gymnastics.

Another exceedingly important part of the military training is to teach the recruit how to care for himself under the peculiar and varying conditions of his new life. This comes to him through the company housekeeping, for in the field each organization takes care of itself, cooks its own food, makes its own beds, does its own policing (cleaning up): in fact, a military company may be considered as a family, the head of which is the commander, who is the director, instructor, provider and dispenser. The commander should regard his men as does a father his children; and they in turn should render him the respect and implicit obedience due from a son to his father.

Certain modifications of the company housekeeping while it is at the subdepot would probably be found desirable; there a general mess for the entire command (except the hospital) would be more convenient. This mess should be so conducted as to serve as a school of cookery, in which the largest possible number of non-commissioned officers and men of each organization should be given an opportunity to gain a practical knowledge of the management and cooking of the ration.

Technical Training of the Sanitary Soldier.

The technical training of the sanitary soldier will be imparted through lectures, recitations, demonstrations and practical work. He must be thoroughly taught first aid and nursing, which include a sufficient knowledge of simple anatomy, physiology, pharmacy, diet cooking, bandaging, etc.; he must know the appliances of the medical department, particularly those pertaining to the field. His instruction in field work becomes of the utmost importance, since his duties will be performed under active service conditions. Pitching and striking tents, loading and unloading wagons, the particular work of the various sanitary units, the care and driving of animals, etc. Bearer drill, the purpose of which is to teach the best method of transporting the ill and injured, is a very important part of this training.

Of course, all this can only be outlined here, but certainly enough has been written to show that the men we must have are no more or less born than any other soldiers; they must be made, and can be made only by the most careful selection and training.

If only for purposes of instruction, it would be desirable that the equipment for at least one ambulance company and one field hospital, complete in the minutest detail, be supplied the subdepot, so that all could learn the material and its uses.

Routine of Duty.

The routine of a day's work would be somewhat as follows: 5 A. M., reveille; 5:15 to 5:30, "setting-up" exercises; 5:30 to 6, breakfast; 6 to 7, fatigue; 7 to 8, study hour; 8 to 9, infantry drill; 9 to 10, recitation in nursing; 10 to 11, study hour; 11 to 12 M., recitation in first aid; 12 M. to 1 P. M., dinner; 1 to 2:30, bearer drill, litter, ambulance, travois, etc., as soon as possible combined with first aid; 3 to 4, formation of ambulance and dressing stations, alternating with the pitching of the field hospital; 4 to 4:30, practical bandaging and splinting; 5 to 5:30, supper.

As soon as the men become sufficiently informed, a certain number of them would be detailed each day in the station hospital for practical instruction with the actual sick, and in the interior economy of military hospitals. Certain others would be detailed in the mess hall and kitchen, and yet others in the other departments of the subdepot, until a fairly comprehensive knowledge of the required work would be gained. With such preliminary training, the sanitary recruit would join his permanent command with an intelligent appreciation of what would be required of him—certainly an immense advantage to him and to the service he will form part of.

The chief object of the foregoing remarks is not to offer the best plan for organizing a State medical subdepot, but rather to call attention to the fact that some such organization will be necessary.

Our country cannot again afford the time, the blood and the treasure spent during the first two years of our last war to learn how to care for the wounded of the next; neither can we begin where that war left our sanitary organization, admirable as it then seemed. A generation has passed since then, and military sanitation has no more "marked time" than have other arts. The ambulance corps of that day, taken from the fighting effective; hospital attendants detailed from the line regiments as the situation demanded, or improvised from convalescents—excellent as was that improvisation, by comparison it was but a step in the evolution of a sanitary corps, and will no more be permitted in our next war than will the surgical procedure used in the last. Our sanitary corps must be distinct and separate from all other branches of the service; its organization and training must begin with the State medical departments, and its recruitment must be continued by them. Ambulance company No. 50, New York, will be just as distinctive in that State as the Fiftieth regiment of volunteers, New York; and field hospital No. 35, New York, as light battery B, New York artillery.

By some such organization, and only such, can our Sanitary corps reach the highest efficiency.

Vancouver Barracks, Washington, March 17, 1898.

ACETATE OF THALLIUM IN THE TREATMENT OF THE NOCTURNAL SWEATS OF PHTHISIS.—At the meeting of the Academy of Medicine held on February 22, Professor Combemale, of Lille, mentioned that he had administered this drug in the form of pills of ten centigrammes in cases of excessive sweating. In thirty patients, either tuberculous or affected with some other disease, who suffered from profuse nocturnal sweats one only was not at all benefited and one other was slightly relieved without being completely cured. Those patients who suffered from large cavities and were very cachectic were most benefited, for contrary to other anti-sudorifics the acetate of thallium produces its greatest effect in very cachectic patients, and those suffering from leucocythemia are also much benefited. In old cases of tubercle which are drying up or in those in which softening is just beginning the drug has not the least effect. Old cases of bronchial dilatation and of chronic bronchitis, which suffer from sweating as much as tuberculous patients do, also derived benefit from the acetate of thallium. The daily dose is from ten centigrammes up to in some cases twenty centigrammes. It must not be given for more than four days in succession, for its effects are very lasting and persist for from eight to ten days, but refractory cases show no improvement even after eight days. The drug ought to be given about an hour before the time when the profuse sweating generally begins. In three cases complete alopecia followed the use of the drug. In from two to eight days the patients lost all their hair, but it is to be remembered that they had already begun to lose their hair and had taken from 80 to 110 centigrammes of acetate of thallium in the course of a month. On the other hand, tuberculous patients under the same conditions whose sweating had been arrested by two doses did not suffer from this sudden loss of hair. Professor Combemale concluded that this accident need not be feared except after prolonged use of the drug or too frequent doses.

PROGRESS OF MEDICINE.

HEART COMPLICATIONS IN DIPHTHERIA.

Dr. Cleon M. Hibbard, of the Boston City Hospital, has published (*Boston Med. and. Surg. Journ.*, Jan. 28 and Feb. 3) the results of a systematic study of the heart complications in a large number of cases of diphtheria treated in that hospital. The results of the post-mortem examinations in the seventy-two fatal cases which occurred are given in the report, and these results are largely drawn upon in formulating the following conclusions reached by the author:

(1) A rapid pulse-rate in diphtheria is to be dreaded. Death usually results when it exceeds 150.

(2) A slow pulse—60 in young children—is a sign often of serious heart trouble.

(3) Irregularities in the pulse occur in about ten per cent. of the diphtheria cases, and are generally significant of cardiac complications.

(4) A systolic murmur at the apex is heard in about one case in ten, and its prognostic value depends upon the nature of the cause.

(5) A bruit de galop in diphtheria is a most fatal sign.

(6) After four weeks, with no heart symptoms in diphtheria, there is little probability of subsequent cardiac trouble in the convalescence.

(7) All diphtheria patients who have tachycardia, bradycardia, irregular or weak pulse, a systolic murmur at the apex, vomiting or any paralysis—especially palatal—should be kept quiet in bed.

(8) The most important element in the treatment consists in absolute rest in bed.

(9) The vagus nerve in the fatal cases always had some evidence of degenerative changes. The weight of the heart was increased.

(10) The cause of death is usually from cardiac thrombi, dilatation or paralysis, produced most probably by the toxin of the diphtheria bacillus.

TREATMENT OF GONORRHŒAL RHEUMATISM.—Rendu (*La Medicine Moderne*, No. 102, 1896) is of opinion that the proper treatment of gonorrhœal rheumatism consists in treating the discharge itself. Internal remedies such as salicylate of soda, salol, and salophen are unsatisfactory. The gonococci must be destroyed at their point of origin where they multiply and infect the organism generally. The best means is by permanganate of potash irrigations. According to Rendu, after two or three days of this treatment, the swelling, pain and œdema of the joints subside, and a cure is effected. The treatment is more effective in early cases, but if the joints have been affected for long, it often fails. In such obstinate cases Rendu recommends injection of the joints with 1 in 4,000 perchloride of mercury. In suppurating cases arthrotomy is indicated. If the joint has not long been immobile there is little fear of ankylosis, but stiffness and muscular atrophy often occur, which are best treated by massage exercises and faradic current.

A SIMPLE METHOD FOR THE TREATMENT OF GONORRHOEA.

Elmer Lee states (*Med. Times*) that he has used the following method of treatment with great success and with comfort to both patient and physician. The treatment is begun in all acute cases by the frequent application of pounded ice to the urethral side of the penis. A small rubber bag, similar to a rubber condom, is partially filled with fine pieces of ice, and this is laid against the under surface of the penis and secured with a few turns of a broad bandage or binder. Care should be taken to see that the air is first expelled from the rubber ice bag before the string is tied near the open end. This ice poultice is to be adjusted at night before retiring, and allowed to remain till morning. Where practicable, the ice bag should be applied both in the morning and again in the afternoon, but this is a matter which is to be determined in each case, according to circumstances. The chilling of the urethra is quite free from danger of harm to the patient, and after the first few moments the penis is benumbed so that the cold is not disagreeable even though maintained for a long time.

No other local treatment is permitted or advised till the heat, redness, swelling and pain is entirely gone. It may take a week or it may be even two weeks before this is accomplished. But during the time of the ice treatment the patient is spared from painful and other complications. When it is possible to urinate without distress, it is then time to lay aside the ice and take up the next step in the local treatment.

The second step is as simple as the first, as it consists of an injection of zinc sulphate and water, four or more times a day, generally but four. The solution is prepared each time by the patient dissolving a tablet triturate of sulphate of zinc, one-half to one grain to the syringeful of water. The water may be either hot or cold; Dr. Lee's preference is for cold water. After the subsidence of the acute symptoms, a week of the injection may end the drip and complete the cure. There will be cases which will require two and even three weeks' use of the zinc astringent.

In cases where the only symptom presenting is a discharge from the meatus, the first step is entirely omitted, and the injection is made the beginning and concluding treatment.

The general treatment is important and is begun from the first visit of the patient. Stimulants and tobacco are discontinued where possible, and in other cases reduced to the minimum. The food is simplified and restricted in quantity; two meals a day are sufficient, and fruit is ordered in great abundance. The drink should consist mainly of plain water, and in large enough quantity to keep the specific gravity of the urine below 1015. The comfort of the patient is greatly augmented by taking care to follow these general directions; at the same time their observance contributes much to a speedy cure. The use of irritating drugs, such as cubebs and oil of copaiba and others of that class, also bromides, are unnecessary and better kept out of the system. The simpler the treatment, the fewer complications will arise requiring offensive chemicals to meet emergencies. Where the simple plan advocated in the paper is slow in producing good results, it would probably be no more rapid by a more complicated practice. So long as the patient is progressing favorably there is no occasion for impatience or undue haste to rush the cure.

In some instances the recurrent catheter has been used with good effect for cooling the internal surfaces of the urethra, as an aid to the external application of the ice bag. That is, the catheter would be employed in the office while the ice bag was to be managed by the patient at home. When the recurrent catheter is used, a fountain containing two quarts of ice water is suspended at a suitable height, just high enough to keep up a gentle current. The stream of flowing cold water is kept running for twenty or thirty minutes at each seance, thereby cooling the urethra and the blood which courses through its walls. The effect is to reduce the heat and also diminish the volume of circulation, with a diminution of the calibers of all vessels entering and leaving the urethral walls, contributing directly to the abatement of inflammatory action. The chilled and contracted walls of the blood vessels and the cooled blood lowers the circulation but does not induce congestion, or, in fact, any harmful result so far as his observation has gone. The external application of the ice poultice, however, is less troublesome both to physician and patient and will generally suffice.

There is another feature of most important consideration with reference to the management of gonorrhœa in this connection, and is a direct contributor to success. In taking cases of this character it is the author's invariable rule to arrange witht he patient at the first or second visit for an agreed fee without contingencies or defaults. Say the fee agreed upon is $100, it is to cover the whole treatment, the patient is free to visit the office as often as may be necessary without thought of augmenting the size of the bill. Punctuality is thus secured and far better co-operation established than under the fee per visit plan. The patient will cheerfully agree to a fee at the beginning of the treatment which he would think excessive and decline to pay at the end of the case. Whatever the fee, it is easier to arrange for it at the inception of the case than at the end, and it is right and proper that one-half of the money should be paid at the start; it will save trouble.

THE INFLUENCE OF X-RAYS ON BACTERIA.

Some interesting experiments on the influence of X-rays on bacteria have been made by Dr. Rieder, *privat docent* at Munich University, and have been published by him in the *Munchener Medicinische Wochenschrift*. He used for this purpose different media such as agar, serum, and gelatin spread on glass plates placed under a piece of lead with a circular aperture in it, the whole being so arranged that a portion of the culture plates was freely exposed to the X-rays which passed through the aperture, while the remaining part of the plates was protected by the lead, which is quite impervious to the rays. Ordinary light was excluded by covering the aperture in the lead with black paper. The culture media on the glass plates were inoculated with cholera bacilli, anthrax bacilli, diphtheria bacilli, bacterium coli, staphylococci, streptococci, and tubercle bacilli, and the whole was exposed for a period of from one to three hours to a very powerful Roentgen apparatus furnished by the Voltohm Company, of Munich, the vacuum tube being placed at a distance of 30 cm. (12 in.) from the glass plate. In this way Dr. Rieder succeeded in ascertaining that the bacteria under the opaque leaden screen developed freely, whilst under the circular hole where the X-rays had free passage no colonies or only a few small ones appeared. The X-rays also had the effect of stopping the development of cultures in process of growth. Unfortunately the experiments made with tubercle bacilli were inconclusive as Dr. Rieder had accidentally omitted to fix the black paper over the whole in the lead so that the influence of ordinary light was not totally excluded. The X-rays proved to be much more powerful than sunbeams in stopping the development of bacteria cultures. Dr. Rieder is opposed to the opinion that the influence exerted by the X-rays may be in reality an effect of heat, for the gelatin was not liquefied by the rays, and the fact that germs derived from the air subsequently developed on the gelatin plates in the ordinary way seemed to show that there was no chemical alteration of the media. He concludes from these preliminary experiments that the results obtained by him must be completed by observations on animals and eventually on the human subject. He says that it would not be necessary to destroy all the bacteria which occur in the body, but that it would be a great advance if we could stop the further development of pathogenic germs. The powerful bactericide action of the blood would then easily succeed in destroying the rest. The X-rays must only aid the organism in its struggle against its enemies. The facts now published are obviously of great theoretical interest, but further observations are necessary to ascertain whether they are capable of practical application.

A STUDY OF THE EFFECTS OF ANTITOXIN ADMINISTERED ORALLY.

Since the appearance in these columns of the note on the administration of diphtheria antitoxin by the mouth by a physician in Yonkers, N. Y., the following note has come to our attention, and in view of the results of Escherich's studies, as recorded below, it would seem that we have but little to hope for from the internal administration of antitoxin. Escherich (*Wien. Klin. Woch.*, 1897, No. 36) records the results of a number of experiments made by him with a view to the establishment of a prophylaxis against diphtheria by internal medication. The most favorable reports of the curative action of diphtheria antitoxin leave a mortality of 10 per cent., and Behring rightly insists that if the disease is to be stamped out it will have to be by prophylactic measures. Apart from the pain and occasional untoward effects of hypodermic injection, it is an expensive method, since it can only be carried out by a physician, and as the prophylaxis lasts but a short time it requires to be repeated every three or four weeks. Escherich was, therefore, led to try whether prophylactic immunization could be effected through the alimentary canal; it appears from previous researches that the immunity of infants at the breast is brought about in this way, the maternal milk possessing antitoxic properties.

The first series of the author's experiments consisted in drawing blood from a healthy child which had a short time previously received a subcutaneous injection of antitoxin, and injecting its serum mixed with varying amounts of diphtheria toxins into guinea pigs. It was found that these survived, while the control animals speedily succumbed. Next, the research was repeated in a precisely similar manner, except that the child received the antitoxin by the mouth instead of under the skin. The result was now quite different, the experimental animals dying just as soon as the control. In the case, however, of one breast baby, though not of others, the serum appeared to have acquired some slight antitoxic properties. It was thought that the failure of the oral method of administration might be due to the action of the acid in the gastric juice, but no better results followed the administration of the antitoxin in keratin capsules or per rectum.

Prophylaxis by means of the administration of antitoxin by the alimentary canal must hence fail, for the antitoxic property is not communicated to the serum of the patient. The same applies to the oral administration of antitoxin for curative purposes. Escherich finally investigated the cause of these bodies not getting into the blood; they must be destroyed either in the intestinal epithælium or in the liver. He excluded the former by injecting the antitoxin into the walls of the intestine between the folds of the mesentery. None got into the blood, and he hence concludes that antitoxin is so changed or destroyed in the liver as to be prevented from entering the blood and there acting.

HEREDITY IN RELATION TO LIFE ASSURANCE.

There are several most interesting points concerning heredity in relation to life assurance discussed in Dr. Hermann Weber's presidential address delivered to the Life Assurance Medical Officers' Association of England at the first meeting this year. He first points out that the nonappearance of disease in the different children must not be regarded as proof that they had not inherited any particular disease from their ancestors. Occupation, manner of living in general, or climatic influences may prevent the development of the disease in one generation and yet it may reappear with all virulence in the next. Dr. Weber proceeds to make some remarks on a kind of heredity which is not always taken sufficiently into consideration—the heredity of the duration of life. He divides people into three classes: (*a*) In the majority of families the average duration prevails; the greater number of members who reach adult life die between sixty and seventy-two years of age, unless some infectious diseases or other unfavorable circumstances produce an earlier death. This large division was not discussed. (*b*) Long-lived families. In a smaller proportion of families is found a tendency to very long lives—viz., from seventy-five to ninety years and more. Infectious diseases and other accidents sometimes likewise cut these lives short, but they frequently survive even these, while the possessors of average lives succumb to them. The latter, for instance, mostly die if they contract typhoid fever after the age of fifty-five or sixty years, while Dr. Weber has seen five cases of recovery from this disease in persons the ages of between sixty-two and sixty-eight years. These long-lived families are of great and profitable importance to insurance companies. He thinks that insurance companies might sometimes allow lower than ordinary rates in such cases without loss to themselves. For instance, if there is no other cause against it, Dr. Weber would accept cases of gout, inherited or acquired, at ordinary rates. *(c)* Short-life tendency. Almost all the members of this group die before attaining sixty years of age, some from recognized diseases and others from ill-defined conditions coming under the head of a general breakdown. This class is frequently as disastrous to insurance companies as the preceding is profitable. He gave some interesting examples of such family histories. Many exceptions occur in members of such short-lived families; but in order to take them as good lives, their personal history and condition must be good as well as the surrounding influences. Change of occcupation and manner of living, change of abode, and still more change of country, exercise a powerful influence on the constitution. Dr. Weber then proceeded to discuss heredity under the heads of different classes of diseases generally regarded as inheritable, and many valuable hints were thrown out as to the amount to be added on certain lives, etc., in regard to which medical officers of life assurance offices have so much responsibility thrown upon them.

CARBOLIC ACID IN TYPHOID FEVER.

Dr. Gerald Williams, of Vernon, British Columbia, makes the following interesting report (*Lancet*) of a case in which an excessive dose of carbolic acid apparently cured a case of typhoid:

Last autumn I attended a case of typhoid fever—a typical case with rash, hæmorrhage and diarrhœa. The patient recovered in twenty-seven days. Ten days after the temperature had been normal both morning and evening he relapsed. His temperature at the end of the first week was 106° F. in the evening for two days. He had two hæmorrhages and distressing diarrhœa. On the fourteenth day of the relapse I saw him at 9 P. M., and as the diarrhœa was excessive I prescribed for him accordingly. The temperature was then 104.5°; the pulse was 90. At midnight his brother, who was nursing him, came for me in a great hurry. He told me that he had given him two tablespoonfuls of pure carbolic acid in mistake for the diarrhœa mixture. I hurried as quickly as possible to his house. Fifteen minutes must have elapsed from the time of taking the poison to my arrival. I took a quart of saccharate of lime and my bag with a few drugs. When I arrived the patient was trying to vomit by putting his fist down his throat, but as yet had not succeeded; before I arrived he had "drunk about a quart of milk." He was very much frightened, his mouth was terribly burnt, his lips were perfectly white, and he complained of great pain in the stomach; he was not at all collapsed. I made him drink a quart of saccharate of lime and administered one-tenth of a grain of apomorphine hypodermically. He vomited in about one minute. I then gave him salad oil and sulphate of soda. He vomited several times more, the vomited matter on the last occasion being almost free from the smell of carbolic acid. He then fell back in bed completely collapsed. The pulse was hard to find and respiration was labored. I injected brandy and æther sulphureous hypodermically. He was quickly recovered; in two hours from the time I arrived I left him. I saw him at 8 A. M. next morning, and was very much surprised to find him looking and feeling very much better than before he took the acid. He only complained of his throat and slight pain in his stomach. His temperature was normal. The pulse was 96. He never had any return of fever, and in a week was out of bed. When his mouth healed he had nothing to complain of at all. In my mind this is a clear case of cure by carbolic acid, but I should not care to try quite such a big dose.

CALOMEL INJECTIONS IN SYPHILIS.

We printed in a recent issue a paper on the intramuscular injection of metallic mercury in syphilis, in which incidental reference was made to the use of insoluble mercurial salts. In this connection we would call attention to the fact that Anthony (*Chicago Medical Record*, October, 1897) recommends administering calomel by subcutanous injection in certain cases. The author follows Neisser in preferring subcutaneous injection to intramuscular, owing chiefly to the danger of embolism from wounding a deep vein. He recommends it in iritis, throat lesions which will not yield to other methods of treatment, gummata of the palate, visceral lesions of all kinds, periostitis and rebellious facial eruptions. It should not be used in old age, in Bright's disease, diabetes, alcoholism, or in pregnancy.

The dose of calomel employed is 0.05 gramme suspended in olive oil previously sterilized by boiling over a water bath for 15 minutes. Each dose of calomel is separately weighed and mixed with the oil at the time of injection. The syringe is sterilized by rinsing first in absolute alcohol and afterwards with hot water. The injections are made in the gluteal region, every seven days, for about five injections. After this, internal medication should be substituted for two months, when the injection may be resumed if necessary.

DIAGNOSIS OF GASTRIC DISORDERS.

At the last meting of the Vienna Medical College, Dr. Hammerschlag read a paper on the diagnosis of diseases of the stomach, in which he said that the proper examination of the gastric functions was a matter of importance and should extend to both the movements and the secretion. The gastric juice varies according to the food which is taken and also according to the time of day; it is investigated by analyzing the gastric contents collected after a test meal and amounting to 50 c.c. or 60 c.c. A quantity exceeding 100 c.c. or the presence of portions of food remaining from the previous day indicates an abnormal condition of the function of secretion. The production of hydrochloric acid may be either deficient or excessive; the latter condition admits of two alternatives, one of them being marked by an increase in the amount of the acid above its normal proportion of about 1.5 per cent., whilst in the other the total quantity of the gastric juice, but not its relative acidity, is augmented. These two abnormalities are termed respectively hyperchlorhydria and hypersecretion. The symptoms of hyperchlorhydria are pyrosis, sour eructation, gastric pain, and sour vomiting; it is distinguished from excessive formation of lactic acid by chemical analysis and by the power of digesting starch. Hyperchlorhydria occurs in a great many disordered conditions of the stomach, as, for instance, in neurasthenia, in gastric ulcer, and in cases of the excessive use of alcohol and tobacco. When the hyperchlorhydria is slight the pain is trifling and may be assuaged by alkalies, when there is an ulcer the pain is considerable, and when the disorder is of nervous origin the pain, unlike that due to an ulcer, is more influenced by mental emotion than by the food. In hyperæsthesia of the gastric mucous membrane, as met with in hysteria, chlorosis, and influenza, there is intense pain after meals; in ulcer there is also pain after the ingestion of fluids. The treatment consists in the use of a 2 per cent. solution of nitrate of silver, a small teaspoonful of which is taken before meals. Patients who suffer from gastric ulcer vomit but rarely, and never when the stomach is empty, but the gastric crisis in cases of tabes are on the contrary attended by frequent vomiting on an empty stomach, by hæmatemesis, and by pains which continue for several days and are independent of the food. In intermittent or chronic hypersecretion there is persistent formation of gastric juice. The chronic form often occurs in ulcer and neurasthenia; it is characterized by a painful feeling of hunger, by the vomiting of sour liquid, and by the disappearance of the pains after food. It, moreover, interferes with the mechanical action of the stomach and leads to dilatation. The stomach after fasting is also found to contain a large quantity of fluid colored green by biliverdin. Diminished secretion of gastric juice is characterized by dyspeptic symptoms, a feeling of oppression in the stomach, nausea, eructation, and anorexia; it has both an anatomical and a nervous etiology. In catarrh the secretion of mucus is increased and nervous dyspepsia is attended by neurasthenic symptoms. Deficiency of hydrochloric acid occurs in catarrh of long duration, in atrophy of the mucous membrane, in gastric neurosis, and in cancer. In the last case the lactic acid is increased in quantity.

TREATMENT OF GONORRHOEA.

Janet (*Revue de Therapeutique Medico-Chirurgicale*) gives his experience since 1892, when he introduced the irrigation treatment for gonorrhœa. He thinks irrigation the best method, and employs it during the earliest stages of the disease, in fact, as soon as the disease is established. He strongly condemns the practice of leaving the urethra alone during the early stage, and thinks such practice is the cause of most cases of chronic urethritis, and of most of the complications of gonorrhœa. He maintains that during the first few days the gonococci cause damage to the urethral mucous membrane, and also infect the organism with toxins.

Janet states that during his five years' experience he has had no case of stricture or other complication when irrigation was begun in the first stage. As regards drugs, Janet still considers permanganate of potassium the best, although in cases where this failed to act well he had good results with itrol and argonin; he has not yet tried Neisser's protargol. His abortive treatment consists in irrigation of the anterior urethra only (unless the second glass of urine is turbid, showing that the posterior urethra is affected), twice a day with a lukewarm solution of permanganate, 1 to 2,000, from a height of 50 cm. above the penis. After three or four days the irrigations are done every eighteen hours, then every twenty-four hours, the solution being strengthened up to 1 in 1,000 by the eighth day.

If the discharge is then mucous, and contains no gonococci, the irrigation is left off. If there is recurrence, or if the posterior urethra is affected from the first, complete irrigation of the whole urethra is practised, the anterior urethra being previously concainized. The douche vessel is raised to 1 meter above the penis, and the patient told to attempt to micturate; the solution is then allowed to pass slowly into the bladder by regulating the pressure carefully. For these cases he starts with a 1 in 4,000 solution, which is afterwards gradually increased. If cases are not quickly cured by this method, extra-urethral accumulations of gonococci are present either in the prostate, the urethral glands, or crypts of the fossa navicularis. Such cases he treats by a kind of gentle massage of the prostate or urethra, as the case may be, to express all secretions containing the cocci, followed by irrigation.

In cases of stricture complicated with gonorrhœa he uses the ordinary irrigation if the stricture is slight; if more severe dilatation and irrigation combined at the same sitting. Cystitis, if due to simple irritation, he treats by irrigation of the bladder with small quantities of permanganate; if the cystitis is infective he combines silver nitrate with the permanganate (1 in 4,000 of each), or else a 1 in 4,000 solution of itrol. If orchitis is present he suspends irrigation till the acute symptoms have passed off.

THE SERUM TREATMENT OF TUBERCULOSIS.

Dr. Everett A. Wood, of Sedalia, Mo., reports (*Va. Med. Semi-Month.*) the details of six cases of tuberculosis and pneumonia in which he used antitubercle serum with the most favorable results in all save one case. although in several of the cases the disease had reached an advanced stage, with large cavities in the lungs. In the one case which terminated fatally the patient was almost moribund before the serum was resorted to. Dr. Joseph A. McFarland, of Philadelphia; Dr. M. R. Ward and Dr. T. V. Crandall have also reported favorable results from the use of antitubercle serum, while Dr. Harrison Crook, of Washington, D. C., has recently reported three cases, two of which have entirely recovered under treatment with antitubercle serum, the third patient having decidedly improved.

THERAPEUTIC HINTS.

Treatment of Severe Syphilitic Ulceration.—The following instructive case is reported by Dr. H. Fournier (*Jour. des Mal. Cut. et Syph.*), which illustrates the advantages of europhen over iodoform, especially in cutaneous and venereal diseases. The patient, twenty-nine years old, consulted the author June 8, 1896, with a history of syphilis acquired about nine years before. For a number of years he had not submitted to any regular treatment, but since then, January, 1896, had taken a variety of drugs, including mercurial inunctions and potassium iodide. The reason of this was the appearance of a tertiary phagedenic ulceration of the prepuce, which continued to spread, and was aggravated rather than benefited by the various remedies employed. When the patient came under Fournier's observation the glans was occupied over one-half of its surface by a deep ulceration, while the prepuce had suffered an extensive loss of substance. Around the ulceration there were patches of sound tissue, surrounded by reddish tubercles, some of which had commenced to break down.

The patient complained of severe pain, which was made worse by some applications. The treatment at first consisted of a wash of infusion of laurel leaves with laudanum, application of europhen, inunctions with mercury, lanoline and iodide of potassium, 4.0 Gm. daily. On June 17 the ulceration had a much cleaner and healthier appearance; there was some tumifaction of the organ due to the constriction by the remaining healthy parts of the prepuce. Some pain was experienced during the change of dressings, which was greatly relieved by bathing the organ in a 1 per cent. chloral solution. The application of europhen was kept up until cicatrization was almost complete, the loss of substance being entirely filled up without deformity. The author concludes in assigning to europhen an important part in the cure of this, without ignoring the utility of the internal treatment. He points out that distinct improvement and arrest of the phagedenic process did not occur until applications of europhen were systematically made, and recommends the use of this drug in all conditions where iodoform is ordinarily employed.

Methylene-blue in Malarial Fever.—Dr. Cardamatis, of Athens, inspired by the researches of Professor Ehrlich, of Berlin, and Professor Boinot, of Paris, has successfully used methylene-blue in the treatment of malarial fever. In his report communicated to the *Deutsche Medicinische Wochenschrift* he publishes 275 cases where the drug was administered. The daily dose was from ten to twelve grains ("Gran") for adults, eight grains for younger patients, six grains for children, and one or two grains for infants at the breast. In typical intermittent fever the drug is given ten hours before the beginning of the paroxysm; in remittent or continuous fever eight hours before the remission. When both methylene-blue and quinine failed a combination of the two drugs proved useful, but the effect was less marked when the methylene-blue was associated with arsenic. The combined treatment was necessary in only 30 of the 275 cases. In quotidian ague, when the patients had become free from fever, after five days' administration, the drug was given for six days. A pause of two days followed, after which it was again given for four days; after a second pause of eight days there was a final administration spread over two days. After twenty-two days a radical cure was obtained in this way. When the attacks appeared again after the fifth day treatment was continued for forty-eight days with several interruptions. In tertian and quartan ague the first stage of the treatment lasted twelve days and the remedy was given for sixty days with several carefully arranged intervals. The advantages of methylene-blue were especially obvious in those cases where quinine had proved useless or where there was intolerance of it. The drawbacks associated with methylene-blue are the staining of the tongue and the lips; a slight amount of cystitis was also sometimes observed, but these inconveniences are very slight in comparison with the radical cure obtained in nearly every case. Immunization seemed to be produced by the treatment, for although the convalescents continued to reside in the malarial district very few of them indeed were subsequently attacked. With the exception of the cystitis already mentioned no toxic symptoms were ever observed. In 18 instances the fever disappeared after the first day, in 36 after the third, in 84 after the sixth, in 88 after the tenth, in 18 after the eleventh, and in 13 after the twelfth day. In 18 cases no cure was obtained. In 38 out of the 275 cases a relapse occurred after two months.

HYOSCIN AND HYOSCYAMIN AS MYDRIATICS.—Emmert (*Correspondenz-Blatt. f. Schweiz. Aerzte*, February 1, 1898) is surprised at Landolt and Gygax saying in their recent Pocket-book of Therapeutics for Ophthalmic Surgeons that "hyoscin and hyoscyamin have been abandoned owing to their uncertain action." For the last sixteen years Emmert has found hyoscin to be the most constant and reliable mydriatic we have, and this has been the experience of many others. As the hydrobromate it is a very stable salt, and has been introduced into both the Swiss and German (under the name scopolamin, which is identical with hyoscin) pharmacopœias. Its advantages over atropine are: (1) It dilates the pupils more quickly; (2) the mydriasis does not last so long, and the paralysis of accommodation lasts about the same time, and this is an advantage for healthy eyes; (3) it cures inflammatory affections of the eye quite as quickly as atropine; (4) even if used for a long time it has no local irritant action (as "atropine conjunctivitis"); (5) it is five times more powerful; (6) used in solutions as strong as 1 in 500 or even 250, any general intoxication is very rare, and even if present quickly passes off and is not dangerous; a solution of 1 in 1,000 is usually sufficient, and never causes poisoning; (7) intraocular tension is not influenced in chronic, though hyoscin is contraindicated in acute, glaucoma; (8) instead of stimulating the cerebral cortex and quickening the pulse like atropine, it has a paralyzing action on the former and slows the pulse, and hence is much safer in heart disease. Considering the weaker solutions required, it is practically as cheap to use as atropine. As regards hyoscyamin, its little use as a mydriatic is not due to an uncertain action, but because it has no advantages over atropine.

The Treatment of Constipation.—At a meeting of the Hunterian Society of London, Dr. Hingston Fox read a paper on the treatment of constipation. The condition is met with in two forms: (1) general or peristaltic constipation and (2) rectal constipation, or both forms may be present. The paper was concerned with the latter form only, and its object was to point out that most cases begin from the neglect of the habit of periodic relief and that the impairment of the evacuant function of the rectum is the primary feature. The mechanism of defecation was described, and the steps by which the act becomes gradually altered, less automatic and more voluntary in its character, and the rectum becomes no longer merely a passage and an evacuant, but a receptacle like the bowel above. The habitual use of aperients was discussed and opposed as unscientific, for the difficulty is in the lowest portion of the canal and is not properly met by stimulants directed to the bowel generally or to a large part of it. To regain the lost habit of rhythmic relief several practical rules were submitted. 1. Absolute regularity in the solicitation of the bowels twice daily—i. e., after breakfast and in the evening when fatigue often relaxes the tight sphincter. 2. Easy posture (Lauder Brunton); the use of a footstool helps. 3. Diversion of the mental attention. 4. In cases of difficulty, postponement of vesical relief until after breakfast so as to get simultaneous relaxation of both sphincters. 5. Removal of all local sources of irritation. 6. Occasional small enemata.

Magnesium Sulphate in Tropical Dysentery.—Surgeon-Captain Charles A. Johnston, of the Indian Medical Service, gives the following method of treatment in the *British Medical Journal* as having given excellent satisfaction, cases with fifteen stools per day being cured in from two to three days even where the patient is on field service. The patient is at once put on purely milk diet, and is given ʒ ij of magnesium sulphate every four hours combined with aromatic sulphuric acid ♏ v (to counteract any severe griping the magnesium sulphate may produce) till the flow of bile is well established, as seen in the stools; then the mixture is stopped, and a quarter to a half of a pure gall nut triturated well with water is given every four hours. By the second or third day the dysentery has gone, and the patient starts his duties again on soft food for a day or so. The magnesium sulphate in this form appears from its physiological action to be the drug par excellence for counteracting the pathology of dysentery, given even that the origo mali be the amœba of dysentery, as the free flow of bile is the best intestinal disinfectant, and this, aided by the other mild purgative and depletive action on the intestines and portal system (which these small doses have), gives the necessary antiseptic and antiputrefactive flushing for the polluted track. If necessary, local applications in the form of counter-irritants or fomentations over the large bowel can be also given. This treatment does not apply to cases of chronic dysentery.

TREATMENT OF WHOOPING-COUGH BY PHENOCOLL.—M. Uargus, of Barcelona, first tried phenocoll in 1895, and derived from it very good results. I have used it, too, in seven children who were attacked with whooping-cough during measles. In all there was marked and rapid improvement. The remedy diminished the frequency of the attacks and their intensity; the nocturnal attacks especially were less frequent, and the total duration of the disease notably lessened. The dose administered was from one to two grammes daily. M. Fabistocherski has had like success in forty cases at the Hospital "St. Olga." Without being a specific remedy, phenocoll offers real advantages in whooping-cough, and should always be resorted to when other remedies, particularly morphine, are contraindicated, especially in young children, in whom the disease is often dangerous. There are no inconveniences attending its use.—*Med. Rev. of Reviews, Feb., '98.*

HOLOCAINE AND COCAINE IN OPHTHALMIC PRACTICE.—Lagrange and Cosse (*Recueil d' Ophtal.*, November, 1897) have used the hydrochlorate of holocaine, in 1 per cent. solution, in 50 cases. They conclude as follows: (1) It is particularly efficacious when the conjunctiva is inflamed; (2) it is to be preferred in operations for strabismus, chalazion, pterygium, and the extraction of foreign bodies from the conjunctiva and cornea; subcutaneously or subconjunctivally, four to eight drops of the above solution may be used; (3) for iridectomy and cataract extraction a combination is recommended (holocaine 0.05, cocaine 0.10, water 10); (4) cocaine in 2 or 3 per cent. solution is the anæsthetic to be preferred in operations in which it is desirable to lower the intraocular tension.

SALIPYRIN IN INFLUENZA.—Dr. L. Fuerst, of Berlin (*Med. Zeitung*, 1897, No. 78) looks upon salipyrin as being almost a specific for the treatment of influenza in children. He administers it three times a day in hot tea, the dose being for children up to 5 years 4 grains, from 5 to 10 years 7 grains, and from 10 to 14 years 15 grains. The results obtained have been remarkably good, both as to rapidity of cure and freedom from tendency to relapse.

POSTURAL CURE OF ENURESIS IN CHILDREN.—During sleep the pelvis should be raised and supported so that it forms an angle of 130° to 140° with the vertebral column. In this way the sphincter of the bladder is relieved from constant irritation. The treatment should be continued three weeks.

A TEXT-BOOK OF DENTAL PATHOLOGY, THERAPEUTICS, AND PHARMACOLOGY. Being a Treatise on the Principles and Practice of Dental Medicine. By HENRY H. BURCHARD, M.D., D.D.S., Special Lecturer on Dental Pathology and Therapeutics at the Philadelphia Dental College, Philadelphia. In one handsome octavo volume of about 550 pages, with 400 illustrations.

BOOK REVIEWS.

An American Text Book of Genito-Urinary Diseases, Syphilis and Diseases of the Skin. Edited by L. Bolton Bangs, M. D., Consulting Surgeon to St. Luke's Hospital and the City Hospital, New York, and to the Methodist Episcopal Hospital, Brooklyn, etc., etc., and W. A. Hardaway, A. M., M. D., Professor of Diseases of the Skin and Syphilis in the Missouri Medical College, St. Louis, etc. etc. Illustrated With 300 Engravings and 20 Full-Page Colored Plates. Philadelphia: W. B. Saunders, 1898. Cloth, $7.00. For Sale by Subscription.

The volume is made up of contributions from some forty-two different authors, each of whom has been assigned some one particular subject for treatment, with a view of obtaining for each subject the treatment of a specialist. The list of contributors embraces such well-known names as those of Charles W. Allen, L. Bolton Bangs, John A. Fordyce, Graeme M. Hammond and Abraham Jacobi, New York city; Edward Martin, Alfred C. Wood and J. William White, Philadelphia; Lewis C. Bosher, Richmond, Va., and G. Frank Lydston, Chicago.

The advantage gained by the division of labor in the preparation of the volume is that each department is brought up to date so as to include the most recent advances. By this division there is, necessarily, some loss of homogeneity in the completed volume, which, however, is not sufficiently marked to seriously militate against its value as a text book.

The two points dwelt upon throughout are diagnosis and treatment, and the practical utility of the volume as a text book is thereby greatly enhanced. The book is well arranged for reference and consultation, is excellently printed, contains a number of very satisfactory illustrations, both in black and white and in colors, and will no doubt prove a valuable addition to the series of "American Text Books" issued by the same publisher.

Annual and Analytical Cyclopædia of Practical Medicine. By Charles E. de M. Sajous, M.D., and One Hundred Associate Editors, assisted by Corresponding Editors, Collaborators and Correspondents. Illustrated. Volume I. Abdominal Injuries to Bright's Disease. Philadelphia: The F. A. Davis Co., 1898. $5 per Volume. Sold by Subscription.

This work is a distinct innovation in the reference literature of medicine, as it is the result of an effort to combine the features of a text book with those of a review of recent literature. This is effected by publishing in six volumes a text and reference book of practical medicine and surgery in which the subjects are arranged alphabetically, a concise statement being given under each title of the best generally accepted method of treatment for the disease named. This is given in large type as being, comparatively, final, while in smaller type is inserted a summary of important literature on mooted points which has been published in the years 1896 and 1897. The work will appear at the approximate rate of one volume each six months, the entire series being thus covered within three years. During this period a monthly supplement will be published under the title of "The Monthly Cyclopædia," in which current literature will be reviewed so as to keep the subscriber informed upon the latest advances of medical science.

Subscriptions are received for the entire series only, which includes a large six-volume reference system, with thirty-six monthly supplements, at a total cost of thirty dollars.

The idea is certainly a novel one, but if one may judge from the first volume of the reference book ("Abdominal Injuries to Bright's Disease") it is a practical one and will prove a boon to physicians whose time and means are limited but who still desire to keep posted upon the advances in medical science.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY, being a Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine. and Surgery, etc. Under the general editorial charge of George M. Gould, M. D Illustrated. Philadelphia: W. B. Saunders, 1898. Cloth, $6.50. Sold by Subscription.

The names of the twenty-seven department editors of the volume alone are sufficient evidence that this year-book covers as completely as can be covered within the prescribed space the advances in medical science for the twelve months under review. As many who have seen the editions for previous years are already aware the review of each particular branch of medicine is confided to a specialist in that branch, and the reader may therefore feel sure that nothing of value is overlooked, and that each new contribution to medicine is accorded a just degree of recognition. Probably no better index of the high character of the volume can be furnished than a rehearsal of the Table of Contents, which reads as follows: General Medicine, by William Pepper and Alfred Stengel; General Surgery, by W. W. Keen and J. Chalmers Da Costa; Obstetrics, by Barton Cooke Hirst and W. A. Newman Dorland; Gynæcology, by J. Montgomery Baldy and W. A. Newman Dorland; Pædiatrics, by Louis Starr and Thompson S. Westcott; Pathology, by John Guiteras and David Riesman; Nervous and Mental Diseases, by Archibald Church; Orthopædic Surgery, by Virgil P. Gibney and Homer W. Gibney; Ophthalmology, by Howard F. Hansell and Wendell Reber; Otology, by Charles H. Burnett; Diseases of the Nose and Larynx, by E. Fletcher Ingals and Henry G. Ohls; Cutaneous Medicine and Syphilis, by Louis A. Duhring; Materia Medica, Experimental Therapeutics and Pharmacology, by Henry A. Griffin and J. R. Tillinghast; Anatomy, by C. A. Hamann; Physiology, by G. N. Stewart; Legal Medicine, by Wyatt Johnston; Public Hygiene and Preventive Medicine, by Samuel W. Abbott; Physiologic Chemistry, by John J. Abel.

In the present volume the department heretofore edited by Professor Henry Leffman has been divided into three separate heads, viz., (1) Physiologic Chemistry, (2) Public Hygiene and Preventive Medicine, and (3) Legal Medicine.

Nearly all of the numerous illustrations are good, and some of the half tones and the full page colored plates possess unusual merit.

The volume will undoubtedly prove of value, and this or some similar reference book should find a place in the working library of every practising physician.

The Diseases of the Stomach, by William W. Van Valzah, fessor of General Medicine and Diseases of the Digestive System in the New York Polyclinic Medical School and Hospital, and J. Douglas Nisbet, A M.D., Adjunct Professor of General Medicine and Diseases of the Digestive System in the New York Polyclinic Medical School and Hospital. Illustrated. Philadelphia: W. B. Saunders, 1898. $3.50 Net.

This book is intended primarily as a working guide for the student and practising physician. To this end the chief attention is devoted to the most approved methods of diagnosis and treatment. Space is not wasted by an extended discourse on anatomy, nor by a theoretical discussion of general pathology; but, beginning with a classificatory introduction, a chapter is devoted to diagnosis and diagnostic methods and one to general medication and treatment. After this the various diseases are taken up in order and treated in a logical way, beginning with etiology and passing through the phases of pathology, clinical description, diagnosis, differential diagnosis, prognosis and treatment.

The methods of examination given and the apparatus recommended, while sufficient for special advanced stomach work, are not too elaborate and complicated for the general practitioner. Indeed, the needs of the practising physcian are kept constantly in mind throughout the book. The subject of treatment is presented in such a way as to leave no doubt in the reader's mind what course to pursue in a given case. Although numerous authorities are cited, the authors are perfectly clear as to what their experience has found most useful, and they do not hesitate to recommend a definite course of procedure under definite conditions.

There is an unusually complete and detailed presentation of the important subject of dietetics. The nutritive value of the various foods is fully discussed, together with their special application in diseased conditions of the stomach. The diet lists for each disease are extremely full, and are so arranged that selections can readily be made to suit individual cases.

"Recollections of a Rebel Surgeon, or In the Doctor's Sappy Days," is the title of a collection of personal reminiscences of the life of a surgeon in the field and the hospital during the cival war which is shortly to be published by Dr. F. E. Daniel, editor of the *Texas Medical Journal*. It will undoubtedly be cordially received by the medical profession of the South, as the subject has been almost wholly neglected, although it is one which is full of interest.

For Syphilitic Impetigo.

Hydrarg. oxid. rubr.	
Zinci oxid	āā gr. xxij
Resorcin	℥gr. ix
Vaselin	j

FAVORITE PRESCRIPTIONS.

Metallic Iodine for Severe Syphilis.

Bouveron (*Lyon Medicale*, 1898, No. 2) recommends the following:

℞	Metallic iodine	15 grs.
	Potass. iodide	q. s. to make solution.
	Glycerin	2 drams.
	Citric acid	4 drams.
	Syrup	2 pints.

A teaspoonful is taken half an hour before meals, twice daily, until six teaspoonfuls a day are administered, or even twice this quantity.

For Ulcers on the Leg.

The following treatment is suggested by the *Journal des Praticiens*. After rendering the surface of the ulcer antiseptic it is cauterized with nitrate of silver, followed by the application of boric acid. If this does not produce improvement the following ointment is applied daily:

℞	Carbolic acid	30 minims.
	Boric acid	2½ drams.
	Powdered camphor	2 drams.
	Ichthyol	5 drams.
	Oil of sweet almonds	2 drams.
	Zinc ointment	3 ounces.

For Sick Headache.

Dr. Albert C. Barnes, of the Philadelphia Polyclinic, recommends the addition of oil of cajuputi to Crozer Griffith's alkaline aromatic mixture for "sick" headache. The amended formula would read as follows:

℞	Ol. caryophylli	ʒ i
	Ol. cajuputi	ʒ ij
	Sodii bicarb	ʒ ij
	Chloroformi	gtt. cxx
	Tr. cardamomi comp	qs. ad ℥ iij

S. Teaspoonful to be taken after each meal.

In psoriasis cacodylic acid has been advocated by Daulas (*Therap. Wochens.*, No. 22, 1897. The following formula is given:

Acid. cacodylic	5
Rum	40
Syr. aurant. cort	40
Aq. dest	120
Ol. menth. pip	q. s.

S. Six teaspoonfuls daily.

Among the disadvantages which have been noted are a garlic-like odor of breath, occasional slight gastric disturbances, and, as recently pointed out by Balzer and Griffon, an erythroderma with extensive desquamation resembling that of scarlatina may occur after the dose of eight grains daily is reached. Eczema has also been produced.

For Severe After Pains.

The late Professor Parvin recommended the two following prescriptions for severe after pains, the choice being determined by the general condition of the patient:

℞	Antipyrin	gr. 11ss.
	Quininæ sulph.	gr. iij.

Of this he gave one powder every three hours, until pain became tolerable.

If the indications forbade the use of antipyrin he used the following:

℞	Pulvi. opii	gr. ss.
	Camphoræ	gr. ss.

One dose every hour until relieved.

For Spasmodic Croup.

Stimpson advises the following treatment, which, in his hands, has proved successful even in very severe cases: The child is first given an emetic in warm water in teaspoonful doses. It is then put in a hot bath, and after this, flannels wrung out of hot mustard water (four teaspoonfuls of mustard to the quart), are applied to the neck and chest. A two per cent. cocain spray is of great service in overcoming the laryngeal spasm. After the immediate danger is past, the following mixture should be given until the catarrhal symptoms have disappeared:

℞	Syr. scillæ	ʒ iss
	Tr. opii camphorat.	ʒ ii
	Tr. tolutan. Glycerini } aa	℥ i
	Aq. dest	q. s. ad. ℥ iii.

M. Sig.—One-half teaspoonful every three hours during the day and every four hours at night.

For Ringworm and Favus.

Dr. P. G. Unna (*Deutsche Medizin-Zeitung*, No. 88-90, 1897) recommends the following method of treatment in ringworm and favus of the scalp: The whole scalp should be shaven, washed, and the following ointment rubbed in:

Chrysarobin	gr. 75.
Ichthyol	gr. 75.
Acid salicyl.	gr. 30.
Adipis lanae	oz. 1.
Vaselin	ad. ft. oz. 11.

M.—Ft. ungt.

A thin cap should be worn on the head, and the edges of the cap bound around with a mull bandage, and covered with zinc-lime (for the protection of the eyes).

Every day or every two days the cap should be removed, the head washed, and fresh ointment rubbed in. The scalp usually becomes red and swollen at the end of four days, when the treatment should be stopped and the irritation relieved by the use of zinc sulphur paste.

Dr. Unna claims that three weekly treatments by this method (never more than six weeks) will effect a cure.

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Scientia et Veritas Sine Timore.

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MEDICAL ASPECTS OF THE WAR WITH SPAIN.

ALL the world awaits with profound interest the issue of the war between Spain and the United States, for this war will put to a practical test a thousand theories which have revolutionized modern armament and methods of war. At sea the relative efficiency of the battleship, the cruiser, the torpedo-boat destroyer and the small torpedo-boat will be determined. On land the efficiency of the modern small bore rifle, the automatic fire Maxim and Colt guns, and the advantages of the new open order formation of infantry will all be given a practical test. Nor are these all the problems whose answer may be looked for in the result of the war.

Medicine and surgery have their own problems, the solution of which will mean life or death, sickness or health to even a larger number than will the solution of the questions of purely naval and military significance. The first great impetus to antiseptic surgery was furnished by the civil war, and the growth of this department of medicine has been so great that we can merely speculate upon the results which we may now expect to obtain. We print in this issue an article on gunshot wounds in the late Græco-Turkish war, with remarks upon modern projectiles by a surgeon who served in a Greek hospital, and from which much valuable information may be gleaned. One very interesting feature observed by the author was that injuries of the bones of the upper extremities healed very rapidly, compound comminuted fractures of the humerus even healing quickly, while wounds of the bones of the lower extremities proved very troublesome indeed. It was found that the bone fractures caused by the passage of the small-caliber high velocity bullets, such as that of the Lee-Metford rifle, sometimes gave none of the superficial indications of fracture and might thus be overlooked. Where this was the case there was grave danger of gangrene. Small-caliber bullet wounds at long range were generally infected by the bullet carrying into the wound pieces of the clothing. Such wounds, even in the soft parts, proved troublesome, requiring constant tinkering for a long time. At short range, however, the wounds inflicted by the Lee-Metford bullet were not, as a rule, infected, and if no bone was struck, healed rapidly. The Dum-dum, a modified Lee-Metford bullet, however, makes an ugly and extensive wound. We are informed that the wounds produced by the Mauser rifle, with which most of the Spanish troops are provided, are quite similar to those made by the Lee-Metford.

In our civil war an abdominal wound was looked upon as meaning death. The wonderful progress made of late years in abdominal surgery will undoubtedly enable us to save many who are wounded in the abdomen, provided adequate surgical aid is provided to ensure prompt attention. The present prospects are that this will probably be the case, for the movement of troops so far made indicate that, for the present at least, no very large bodies of troops are likely to be engaged simultaneously. After the battle of Sedan it may be recalled that five days elapsed before all the wounded received attention, while many of the wounded at Gettysburg went totally uncared for for more than two days. Under such circumstances those suffering from abdominal wounds will almost surely die from peritonitis.

A wholly new class of cases will no doubt develop on ship-board, cases in which traumalic neurosis form the principal feature of interest. The vivid word picture of the battle of the Yalu, painted by gallant young Captain MacGiffen, has been heightened in intensity of coloring by his own sad death, directly due to the nervous disorders brought about by the battle. The nervous tension of life in torpedo-boats

> The stripped hulls, slinking through the gloom
> Half guessed and gone again

is so great that the potential active life of men serving on them is said to be only three or four years at most.

When one of the twelve inch guns on the battleship Texas was fired the thick plate glass in the ward-room skylights was shivered to minute fragments, and a hair brush in an officer's cabin was observed to bounce up three feet and fall on the floor. At a distance of two thousand yards the impact of a shell from one of the thirteen inch guns of the Massachusetts, Iowa or Indiana develops an energy of 25,000 foot pounds. With such engines of destruction as these at work the effect upon the nervous system of the men is difficult to foretell. In private life the effects of nervous shock in railway and other accidents seem to be endless in their variety. It has been estimated that in an active engagement between well-matched modern war vessels one-third of the officers and men will be incapacitated in the first fifteen minutes of the engagement. Should the engagement last for any length of time it is probable that the nervous system of all the men in the turrets will be more or less completely shattered because of the terrific concussions.

* * *

YELLOW FEVER and malarial diseases are, however, the factors which will cause the greatest uneasiness and give the greatest amount of work to the medical department of the army. The campaign opens just at the beginning of the rainy or unhealthy season in Cuba. The main point of defense of the Spanish is Havana, the home of yellow fever, and it is presumed that efforts will be made to dislodge them from that city. If this is done and American troops quartered in Havana, a very grave responsibility will rest with this government. Thirty-five times has yellow fever been introduced into the United States from Cuba, and in twenty-three of these cases it has been clearly proven that the infection came from the city of Havana. Surgeon-General Wyman, of the Marine Hospital Service, says that the harbor of Havana is a cesspool, which for years has received the drainage of the city; besides, it is a veritable *cul-de-sac*, which cannot be scoured by the tides or by fresh water streams. The wharves on the Havana side of the harbor are notorious as sources of infection. An examination of the records of the quarantine stations on the South Atlantic and Gulf coasts for 1894 shows eleven cases of yellow fever, all having been taken from vessels arriving at the Dry Tortugas station from the wharves in Havana. Two of these wharves, the Tallapiedra and the San Jose, are especially dangerous. Under the Tallapiedra empties the sewer from the military hospital, where the yellow fever patients from the army are treated. It has been said that no vessel with a non-immune crew on board has ever been tied to this wharf without yellow fever appearing among them. So well known is it as a danger-point that sailors call it "Dead Man's Hole," and so great is the danger of tying up to it, that captains of American vessels have been known to pay for the privilege of discharging cargoes on lighters in the open bay, the payment being made by deduction from freight charges, amounting frequently to $200 or $300. American captains have frequently asserted that the United States Government should not allow vessels to go to this wharf.

Conditions almost as bad as those pictured formerly existed in the harbor of Vera Cruz, but by extending the sewers so that they emptied into the open sea, and opening an artificial channel which caused the tide to scour the harbor bed, that seaport has practically been freed from yellow fever. Such changes might be made after Havana was captured, but could not be effected soon enough to protect the troops exposed there this summer. If, indeed, as a result of this war yellow fever could eventually be stamped out of Havana, that alone would be worth to the United States all that the war seems likely to cost. But on he other hand, if a yellow fever epidemic be introduced into the south through the landing of troops in Cuba, the United States will be paying a high price for the freedom of the island.

That the gravity of this aspect of the situation is appreciated is shown by the fact that Dr. Guiteras has already been summoned by the government to prepare for service in the south and possibly in Cuba. With the whole country under military discipline we will have an excellent opportunity for testing the efficacy of quarantine, for there should certainly be no difficulty now in enforcing an absolutely perfect quarantine, even if troops are landed in Cuba. It is altogether probable also that the army surgeons will have ample opportunity to give a thorough test to Sanarelli's method of treating yellow fever, and we may thus obtain final answers to two much vexed questions—Can an effective quarantine be maintained? and Is Sanarelli's treatment effective?

The prospects are decidedly favorable for a largely attended and successful meeting of the American Medical Association at Denver this summer. The local committee state that thus far general estimates have been received from thirteen states, representing a total of six hundred and eighteen. From the reports received the committee is confident of an attendance at least as large, and probably larger, than there was at the Philadelphia meeting. Very low rates will be made by the railroads, and a "chut muck" special will be run out of St. Louis on the Missouri Pacific road which will carry the organization whose name it bears and many other physicians beside. Those physicians who have never visited the Rocky Mountains should certainly avail themselves of this unusually favorable opportunity for doing so.

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DRY LABOR—ITS DANGERS AND TREATMENT.[1]

By GEORGE LIVINGSTONE BRODHEAD, M.D.,
Assistant Attending Physician to the Society of the Lying-in and New York Maternity Hospitals.

This subject, dismissed in a few words in many of our text-books and treated far too lightly in obstetrical works generally, seems to me to be one of sufficiently great importance to merit special consideration. The dangers of a premature rupture of the membranes are, as we shall see, manifold; and so grave are the effects at times that cases in which the accident occurs should receive the most careful attention. Strictly speaking, a dry labor is one in which the membranes have ruptured at some time prior to or with the first labor pain. But for practical purposes it will be better to broaden our definition, so as to include all cases in which the membranes rupture during the first stages of cervical dilatation, when as yet the "water wedge" has much to accomplish.

It is surprising to note the frequency with which such early rupture occurs. From observation of a large number of cases during my service as resident physician of the Sloane Maternity Hospital, I found that in fully fifteen per cent. of all cases the membranes ruptured either before or with the first labor pain. In other words, about fifteen women in every hundred have labors which are strictly dry, and if we add to these fifteen cases all of those in which the rupture of the fœtal sac takes place early in the first stage, we have a comparatively large number in which certain dangers may arise and which should be given special attention. Fortunately the accident, for such it must be called, occurs nearly twice as often in multiparæ as in primiparæ. It is true that in the former class of cases this early rupture seems often to be followed by no untoward results, but in other cases, and especially in primiparæ, the course of the labor may be modified in various ways, varying from the degree of mere discomfort and tedious protraction to that of great danger to the child and possibly to the mother. Even though the point of danger is not actually reached, a dry labor, particularly in a primipara, is usually more painful, and indeed, as one can readily appreciate, almost necessarily so, from the fact that now dilatation must be accomplished by some fœtal part, usually the head, in place of the fluid dilator, the bag of membranes. In normal labor, during the intervals between pains comparatively little if any pressure is made upon the cervix, but in dry labor the presenting part is often "wedged" down into the cervix, in such a way that pressure upon it is almost if not quite continuous, with a consequent increase in the amount of pain suffered. Such continuous pressure, too, is liable to and often does cause œdema of the cervix and other soft parts. Again, some of the worst cases of protraction with which we have to deal in both multiparæ and primiparæ, are those in which the labor has been dry or practically so. That infant mortality is much higher in such cases there can be no question, yet many lives are lost through the failure to recognize the danger, and therefore to make use of the correct treatment at the proper time.

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[1] Read before the section on obstetrics and gynæcology, New York Academy of Medicine, April 28, 1898.

Before entering, however, upon the detailed discussion of the serious aspect of these cases, the full knowledge of which is so important for successful treatment, let us consider for a moment the several ways in which rupture of the membranes may occur. In the majority of the cases, in my experience, no cause can be found, the woman perhaps being perfectly quiet or even asleep at the time liquor amnii begins to come away. There are cases undoubtedly in which disease of the cervix "thins out" the membrane lying near it, thus making rupture easy; or some exertion or trauma may be the apparent cause, the fœtal sac being perfectly normal. Occasionally the accoucheur, while making a digital examination in the attempt to make a diagnosis of position, or perhaps while introducing a bougie for the purpose of inducing labor, accidentally punctures the fœtal sac. At times the rupture takes place high up, at some distance from the most dependent portion of the sac, and as the presenting part descends the opening becomes obstructed and further escape of fluid is prevented. This, indeed, is a fortunate occurrence, for usually when the flow has once begun it will be more or less continuous during the entire labor, and thus large quantities of fluid be lost.

The Dangers of Dry Labor.

Now, what are the dangers of a dry labor, or one made practically dry by the early escape of amniotic fluid? How are the dangers to be recognized? And, finally, how are such cases to be treated?

Let us consider, first, the dangers to the child. These are two in number—asphyxia and meningeal hæmorrhage, the two being frequently associated. The higher infant mortality in cases of dry labor is to be attributed to one or both of these conditions, the child being stillborn or dying within a few hours or days after birth. It is surprising to note the frequency of asphyxia of different grades, and I am positive that the mortality is much higher than it is generally believed to be. I am of the opinion, however, that with close observation and careful treatment from the very first the prognosis for the child will be very much improved. The reasons for the presence of asphyxia are several, and it is not difficult to understand the frequency when one considers for a moment the conditions present in such cases. When the liquor amnii has drained away or is escaping constantly from the uterus, the latter contracts much more tightly about the child, with the possible result of compression of the placenta or cord between the body of the child and the uterine wall. Again, the cord is much more likely to be compressed at any point than if surrounded by amniotic fluid, and the compression is more apt to be continuous because of the closer proximity of the uterine wall to the child, thus preventing at least perfect freedom of motion and in some cases practically all. Such compression means necessarily interference with the fœtal circulation, and hence asphyxia to a greater or less extent, depending on the amount of pressure and its continuation. Then, again, as we well know, the uterus in a dry labor tends to become exhausted much sooner than it normally would, the tonic contraction interfering greatly with the circulation in the uterine sinuses, this in turn affecting the child seriously.

In regard, secondly, to meningeal hæmorrhage. In the absence of the "water wedge," so called, dilatation must be accomplished, as a rule, by the fœtal head. This means usually, especially in primiparæ, the formation of a large caput succedaneum and oftentimes very extensive moulding. In this process, the vertex is naturally exposed to great pressure, and a pressure, too, which from the nature of the labor (in the absence of fluid) is apt to be more or less continuous. As a result we have hæmorrhage into the meninges, with symptoms of pressure, in varying degrees, with perhaps the death of the child several hours or days later. In many ways, then, the life of the child may be in grave danger, and the study of the danger signals becomes one of great importance.

Before taking up the discussion of these points, let us consider for a moment the dangers of dry labor to the mother. As I have already said, the great dangers are those of any protracted labor—laceration of soft parts, to which the œdema predisposes, pressure necrosis, hæmorrhage, liability to sepsis, and slower convalescence, not to mention rupture of the uterus, either spontaneously or during difficult efforts to extract the child.

The Signs of Danger.

Turning now from the dangers, let us take up the signals or signs pointing to them. Firstly, with reference to the child, we see a number of labors in which all seems to be going well, until meconium is found escaping from the vulvar orifice, or when the examining finger is withdrawn covered with meconium, or liquor amnii tinged with it. This occurs at times in the first stage, but more usually in a protracted second stage. In any case (with the possible exception of a breech, in which the presence of meconium could be easily accounted for) the sign of danger must not be overlooked, for as a rule, unless methods are at once resorted to for the delivery of the woman, the probability of asphyxia is great, with, in some cases, the death of the fœtus in utero. We cannot promise, however, to save the life of the child under such circumstances, even by prompt interference, for asphxyia may be already too deep. I am sure that many of you will recall, as I do, cases in which the labor, although dry, had been apparently not unduly prolonged, and yet, in spite of prompt interference, the child was either stillborn or very deeply asphyxiated. Another sign which may indicate embarrassment of the fœtal circulation is that of unusually vigorous movements on the part of the fœtus. This unusual activity in many cases leads us to believe that the child is beginning to suffer from the lack of pure blood, and when examination is directed to the fœtal heart we are able to distinguish changes there. This brings us to the consideration of the fœtal heart sounds. By careful observation the normal rate of the heart action can be known for each case. Any marked deviation from what is normal for the case under consideration must be looked upon with great care. There is no fixed rule for the danger line, but by a series of examinations one can detect readily whether there is a decided tendency for increased or decreased rapidity. In general, one may say that fœtal heart action above 160 or below 120, in a case whose normal is between those limits, should be the object of careful attention, for oftentimes it will be seen that the rate is becoming steadily higher or lower. Of course it is not difficult to suspect trouble when the heart rate gets to be 170 or 180, or when it becomes as slow as 80 or 90, but it should be our purpose to detect the very commencement of trouble, for by so doing the chances for a successful termination will be much brighter. Then, again, an irregular or intermittent action in a case previously normal should invite close attention; but it must be remembered that some fœtal hearts do beat intermittently or irregularly at various times when no cause can be discovered, labor not having commenced in some. When asphyxia begins the heart beats are sometimes "muffled," so to speak, or indistinct, although the rate may remain the same. In other cases an umbilical souffle develops, showing probable compression of the funis. One case of that kind comes vividly to mind, in which the souffle developed immediately after the replacement of a prolapsed cord by means of a bougie, showing obstructed circulation at some point. Important as observations upon the fœtal heart are in cases of normal labor, in dry labor they become of even greater value, because of the greater likelihood of complicating asphyxia.

Protracted labor, in its effects upon the mother, need not detain us long. The rise of pulse, temperature, and respiration, the restlessness, anxiety and despondency, the diminished vaginal secretion, the weak inefficient pains, are all so plain as to be recognized with comparative ease. In some cases of dry labor, when protracted, we find an odor also, putrefactive changes having already started in. Mild sapræmia is not uncommon after dry labor, but it generally yields to treatment readily. Many cases of sapræmia do well with no other treatment than that of simple cleanliness, the elimination of putrefactive material proceeding rapidly, drainage being free. In my opinion, warm antiseptic vaginal douches will answer the purpose in almost every case, but should be given with every possible care as to cleanliness, and given very gently, in order not to open new channels of infection by removing the protective covering of abrasions in the vagina and vulvar orifice. In some few cases a uterine douche seems indicated, and if given with all possible care will be productive of good. The vulva and vagina should first be thoroughly cleansed, and the douche nozzle when carried into the uterus be simply held in its cavity, for what is loose and ready to come away will be washed out, and the active use of a douche nozzle as a sort of curette has been followed by serious results, owing to the laying bare of denuded areas and increased absorption of infective material. At times severe symptoms will follow even the gentle irrigation of the uterus. In one instance in my experience, within thirty minutes after a uterine douche had been given in the hands of a careful assistant, the patient had a sharp chill, followed by a temperature of 106.4° F. As a rule, however, one or a few uterine douches will be sufficient, and with care little if any harm will be done.

Treatment.

Passing now from the dangers and their symptoms, we come to the treatment. To my mind, many cases do badly for the reason that they are treated as cases of normal labor. I maintain that the early rupture of the membranes puts a new phase, so to speak, on the labor, and certain plans of treatment, which in normal cases are unnecessary and unadvisable, seem to produce good results in cases of dry labor. Let us take up for consideration, first, those cases in which the membranes rupture before labor sets in. In every case, whether before labor or during labor, even though an examination has been made a short time before, a careful examination should be made as soon as possible after the rupture of the membranes or their reported rupture. Some women are mistaken in their diagnosis of the condition, but it is far better to assure one's self of the exact condition of affairs. By doing so we verify or disprove the woman's statement, detect any accident, such as that of a prolapsed cord or small part, and, moreover, are able to make the diagnosis of presentation and position an accurate one. Again, it is perhaps needless to state that, if the case be one of malpresentation, operative interference immediately after the rupture of the membranes will be possible, and with excellent chances of success; whereas the failure to learn of the exact condition at once may result in the death of the child, the correction of the abnormal presentation being later impossible.

After one careful examination has been made, however, further efforts should be infrequent, and then not be prolonged, for in some cases, as I have already said, the presenting part in its descent blocks up, so to speak, the point of exit of fluid, and further escape is thus prevented. This is, of course, most favorable to the child, and we may in further examinations undo, as it were, the assistance which nature has kindly given us. After the rupture of the bag of membranes, the sooner labor commences the better, as a rule, will be the prognosis. My plan in these cases is to administer at once a large dose of castor oil and glycerin, followed shortly after by ten grains of quinine sulphate, to be repeated every three hours, with one-thirtieth grain of strychnine sulphate every two hours, careful watch being kept for unpleasant effects of either. These drugs, I believe, aid in the induction of labor, and, given during labor, seem to increase the number and strength of the contractions, in some cases at least. Under close observation they can do no harm, and serve to stimulate the patient to a certain extent as well. At this time women are able, it has seemed to me, to take much larger quantities of these two drugs than at any other time, without unpleasant effects. Before the digital examination is made, the genitals should be scrubbed with soap and water (the officinal sapo viridis being preferable); then with a solution of bichloride, 1 to 2,000, or a solution of lysol, one per cent. After the examination a sterile pad of gauze, covered over with a towel or small vulvar pad, should then be placed over the vulvar outlet and changed as often as saturation with amniotic fluid makes necessary. In this way the vagina can be kept free to a certain extent from the entrance of "outside" infection.

Another procedure, which in my experience has been followed by excellent results, is the use of vaginal douches of lysol in one-per-cent. solution, as hot as can be borne, one being given every six hours, to the amount of three quarts. These douches will keep the vagina sweet and clean, will leave the mucous membrane smooth and soft (acting in just the opposite way from bichloride solution), will stimulate uterine contraction, and in some cases seem to soften the cervix somewhat. Here again the importance of absolute cleanliness must be emphasized, for unless these douches can be given with the greatest care they may easily be the cause of the introduction of septic material. When, now, the membranes rupture during the first part of labor, the treatment as outlined above is carried out, with the exception of the cathartic perhaps. This can be given or not, according to the necessity. The use of chloral and opium in dry labor must be a guarded one, the danger of asphyxia and protraction being always kept in mind, and it being remembered that these cases often need stimulation rather than a period of rest, during which time more and more fluid is escaping. The fœtal heart should be carefully noted before such drugs are administered. I can recall one case in which chloral was administered in the latter part of the first stage, the fœtal heart being then somewhat more rapid than it had been during the earlier part of labor. Very soon afterward the fœtal heart became so much more rapid that the forceps was used, the cervix offering practically no resistance. Meconium was found when the blades were introduced, and in spite of a quick delivery, made more difficult by the sluggish action of the uterus induced by chloral, the child was born deeply asphyxiated and was with only the greatest difficulty resuscitated. Several months ago, at the Sloane Hospital, in the attempt to induce labor on a patient with deformed pelvis, the membranes were accidentally ruptured and a considerable amount of amniotic fluid escaped. When informed of the condition of affairs, Dr. Tucker, who was then in charge of the hospital, advised that the vagina be tightly tamponed with sterile gauze, in order to hold back as far as possible the escaping fluid, both for the sake of the child and to aid in softening and dilating the cervix. This procedure, of such great value in abortion and placenta prævia with rigid cervix, proved in this case to be of apparently great assistance, the cervix dilating perfectly within a very few hours. Having seen the good effect of the tampon in one case, the question has arisen in my mind, "Would it not be a good plan to apply such a tampon as a routine procedure in all cases of dry labor?" At present I am unable to state any results from following such a plan, but theoretically at least it should be successful. When the progress of labor is very slow, I believe it is best to stretch the cervix a little every few hours, a preliminary vaginal douche of lysol having been given. Care must be taken also that the strength of the patient be kept up in every possible way, by the use of plenty of nourishment and stimulants if necessary.

Operative Interference.

Now, is operative interference ever advisable during the first stage of a dry labor, except when complicating conditions—such as eclampsia, hæmorrhage from placenta prævia, etc.—arise, or when from any cause the condition of mother or child strictly indicates operation? In my opinion, there is one condition of affairs in which much good can be accomplished, namely, in breech presentation. When a breech labor is protracted in the first stage, even though as yet no symptoms of danger are present, I think we are justified in giving the patient a little chloroform, the vagina having been first thoroughly cleaned, and in introducing the hand for the purpose of bringing down one foot, preferably the anterior, with which to make traction from time to time. If this be done early, it can usually be accomplished with no great difficulty, whereas later on it may be a very difficult matter. If both legs are extended, the operation will accomplish even a better result, in that it will have broken up the existing "wedge," at a time when the operation is comparatively easy. After the escape of a large amount of liquor amnii, it is sometimes a difficult task to grasp a foot lying high up in the uterus, and the difficulties increase the longer the operation is delayed. If danger symptoms are present, or if for any intercurrent condition it becomes necessary to deliver at once, the usual methods of cervical dilatation, forceps or version, are to be used.

When we now come to the consideration of the second stage of dry labor, the statement just made with reference to the first stage holds true here as well. But in the absence of danger symptoms the question arises: How long shall we wait, in the second stage, for its natural termination? It is very difficult and, in fact, impossible to fix any definite period of time; but in my opinion, if in one-half hour after the commencement of the second stage there has been little or no advance, the forceps (or extraction if the breech presents) is advisable, chiefly in the interest of the child, but with the welfare of the mother also in view. I have never had occasion to regret early operation in the second stage of dry labor, but there have been many, many children lost owing to delay at that time and the failure to interfere promptly.

Reference has already been made to lysol for vaginal douching, and its use preliminary to all operative measures is a most excellent one. It not only cleanses the parts very thoroughly, but leaves the mucous membrane smooth and soft, thus making any operative procedure much easier and the liability to laceration far less. Early interference in these cases is obviously in the interest of the soft parts of the mother, for time can be allowed to preserve their integrity, whereas if operation be undertaken when meconium is being passed or the fœtal heart is already bad, the welfare of the child demands speedy delivery, with consequent laceration often times of vaginal and perineal tissues.

In closing, allow me merely to emphasize in a few words the great importance of dry labor, the possible dangers, chief among which is fœtal asphyxia, and the belief that with close observation and prompt energetic treatment our statistics both for mother and child will be greatly improved.

WASHING OUT THE INTESTINES.—Clozier (*Gazette des Hopitaux*, September 11, 1897) recommends the free washing out of the intestine in infectious enteritis. In four cases he used nine pints of water pure, saline or with salol, and repeated the process of irrigation of the intestinal tract by enema several times in each case with good results.

PREGNANCY AND TUBERCULOSIS.[1]

By C E. PADDOCK, M D.,

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Popular opinion as to the influence of tuberculosis on pregnancy is that it results in beneficial effects and that the patient takes a new lease upon life. The seeming basis for this opinion is supported by numerous instances within the experience of any general practitioner. When the changes which occur in the pregnant woman are remembered, this supposedly beneficial influence seems the more plausible. There is a seeming increase in the blood supply, the organs as a rule are more active, the skin becomes more hyperemic, the urine increases in amount, the heart is enabled to meet the greater requirements which the condition demands. These changes place the woman in seemingly the best possible condition for the ordeal. In a tubercular pregnant woman there usually occurs emaciation, lowered vitality, anemia, and every outward evidence of disease. The changes resulting as indicated to prepare her for maternity do not meet the requirements of that condition.

Admitting that pregnancy be a physiologic state, it borders so closely upon the pathologic that physicians are generally called upon during its course to advise or institute treatment. Nausea, for instance, which occurs so regularly that it is largely considered in diagnosing pregnancy, is essentially a pathologic state. Ordinarily it does but little harm, if any, and generally yields to treatment. In tuberculous cases nausea is more persistent and does not yield easily to treatment; the patient's power of resistance is lowered, and this being the case progress of the disease must be hastened.

Comparatively little attention has been given to the subject of tuberculosis during pregnancy, and the text-books devote but very few paragraphs to this important subject. In looking over the cases reported I find them to present about the following results:

Case 1.—Patient has been pregnant for two months; is anemic, poorly nourished, and has pulmonary tuberculosis. She dies before the child is viable.

Case 2.—The patient is substantially in the same position as Case 1. She, however, lives to be confined at term, but succumbs in a few weeks.

Case 3.—The patient has pulmonary tuberculosis, but displays no external evidence of the disease. The child is born at seven months, dead. The mother lives but a few days after delivery.

Case 4.—The patient is very much emaciated and displays every external evidence of pulmonary tuberculosis. She gives birth to a vigorous child. She again becomes pregnant, but dies during the pregnancy.

Such are the histories of patients met with in every-day practice in whom pregnancy and tuberculosis are associated. So far as they go they justify the opinion that tuberculosis is unfavorably influenced by pregnancy. The announcement that she is pregnant usually gives a shock to the tuberculous patient. It is unwelcome. She becomes morbid. Soon there occurs nausea, with loss of appetite. The patient refuses to take proper exercise. Everything is favorable to the systematic onset of tuberculosis. The power of resistance is lowered and the vitality is not sufficient to support two beings.

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[1] Read before the Chicago Academy of Medicine.

While there are cases in every branch of medicine in which the symptoms point to a lethal outcome, dependent however on that unknown quantity, the vitality of the patient, such cases cannot be cited in evidence as to the favorable influence of physiologic conditions or diseases upon each other. This is particularly true of the cases in obstetrics which seem to demonstrate that pregnancy exercises a beneficial influence on tuberculosis. Such cases are, however, exceedingly rare, and where one seems to exercise a beneficial influence on tuberculosis, there are hundreds which show that the disorder is made worse by gestation. There is one element which is erroneously taken to indicate the superior vitality given by pregnancy to the patient suffering from tuberculosis, and that is the multiple and frequently repeated pregnancies which occur in the phthisical.

In common with other degenerates, the tuberculous exhibit a tendency to the reversal of the law of individuation whereby groups of cells are confined to special functions. In consequence of this reversal, cells resume their old power of reproduction. If this occur too soon in evolution, sterility results from the excessive pressure of the cells on each other. If it occur at a more advanced phase of the evolution of the ovarian cell, multiple and frequently repeated pregnancies occur. Such frequently repeated pregnancies must be viewed as expressions of degeneracy rather than the result of the beneficial influence of pregnancy on tuberculosis. Nature is tending to secure fewer and better offspring. The ideal of human fecundity is not the codfish with its billion young. This was pointed out about seven decades ago by Dr. W. P. Dewees,[2] who observed cases which fully demonstrate both the degenerate tendency of the tuberculous to frequent pregnancies and the comparative vitality despite these and the disorder. One of his cases was as follows: The mother, in whom the disease was first present, lived to be 43, a period of life exceeding that of all her children, with the exception of one son who died at the age of 45. She bore twenty-three children; she was able to nurse but two of these. The males, who exceeded the females in number, attained a greater average age. They were as a rule well built and often athletic. Some of the children died at puberty and some at man- or womanhood, but with the exception stated all died under the age of 30. The family lived in the country and was very wealthy. On the onset of pulmonary symptoms all the then known remedies were employed. At the present day the majority of these people could have been saved. It was then the custom to bleed for hectic, which procedure undoubtedly hastened the course of the disorder. Although the infectious nature of tuberculosis was then known, this knowledge had led to no practical action except in Italy and some of the Latin countries.

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[2] Practice of Physic, vol. ii, page 495.

The question arises, having a case in which tuberculosis is complicating pregnancy, what is the proper course to pursue? Shall pregnancy be interrupted or the case be left to Nature? In this connection I would cite two cases coming under my own observation.

Case 1.—The patient was a 30-year-old blonde American who had never been robust, but had always been considered in good health. She had had four children in five and a half years. The fifth pregnancy occurred six months after the last child was born. There was then dulness in the right apex, but no cough, and but slight evening temperature. She aborted at the second month. After consultation the patient was placed under the influence of an anæsthetic, the cervix was dilated, and she was curetted. Following this she had slight elevation of evening and morning temperature. There was no pelvic trouble. The case ran a mild typhoid course of four weeks. The patient went to the seashore and White Mountains for eight months. Upon her return I found both apices were involved. She was sent to New Mexico, but has received no benefit.

Case 2.—A 24-year-old blonde American in her second pregnancy. She was active, apparently healthy, and robust. The first pregnancy had occurred four years previously. During the second pregnancy the diagnosis was made of pulmonary tuberculosis with infection of the glands of the left side of the neck. After labor the glands infected were removed. Two months previous to the second pregnancy the glands on the right side of the neck were removed and found to be tubercular. Pregnancy was complicated in the last month by hydramnios. A few months after labor the patient left the city in seemingly good health. Two years from date of delivery she died of pulmonary tuberculosis.

In the first case interruption of pregnancy was beneficial. I was enabled to institute treatment which would have been impossible in the pregnant state.

In the second case the progress of tuberculosis was interrupted, but this interruption can hardly be charged to the influence of pregnancy. This case was an exceptional one. The patient welcomed pregnancy, was not aware of her tubercular condition, and was naturally cheerful. She was hence a case whose lack of depressing features might lead to the disorder being favorably influenced by pregnancy and the material changes incident to it.

Over five decades ago the subject was discussed before the Paris Academy of Medicine by the clinicians Louis and Grisolle. At that time the opinion of Cullen, of Edinburgh, that phthisis was suspended or retarded by pregnancy had been disputed by Gaulard, of France, and had given way to a modified opinion in France to the effect that pregnancy did arrest the progress of phthisis, but that after delivery the pulmonary tuberculosis rapidly advanced. In the discussion before the Academy cases were cited by Grisolle and Louis. In cases followed to the end it was found that the duration of the pulmonary tuberculosis was one-third less than in non-pregnant women at the same age. These statistics tended to disprove the opinion that after delivery the progress of the disorder was more rapid. As these were hospital pauper cases, the influence of improved hygiene and diet could not be, however, excluded.

In 1890 Dr. Willian Duncan[3] reported to the London Obstetrical Society a case of interruption of pregnancy in a tubercular woman. This communication provoked a discussion in which his position was with but one or two exceptions opposed. In the discussion of this case Drs. Priestley, Routh, Playfair, Napier and others took part. Dr. Routh thought that most obstetricians had observed that the progress of lung destruction was at a standstill during pregnancy, but became very active during lactation. Dr. Playfair believed "that in the greater number of cases the mother is doomed, and everything should be done in the interest of the child. To say that pregnancy should be interrupted in any stage of phthisis, and at any period in pregnancy, was too broad a statement and gives too much latitude."

Dr. Priestley[4] had, in 1890, laid it down as a rule "that abortion was only a legitimate operation when the life of the mother was imperiled by the continuance of pregnancy, emptying the uterus presenting itself as the only alternative to save the patient."

What evidence have we that this does prove the only means of saving the woman? And again, if we do produce abortion, what excuse have we for not doing it again and again? Once in a while we will encounter a case which lives to a good age. As cases of phthisis, as already shown, often conceive very rapidly, if we operate once we will be called upon to do so again.

Enough evidence has not been adduced to warrant the assumption that interruption of pregnancy means a saving of the life of the mother, and neither can we justify such a procedure by saying that an inferior child would be brought into the world.

My first case upon which I operated is not unlike nearly all that I find recorded. It was benefited temporarily. A fœtus was, however, sacrificed, which might have developed into a healthy child, for not all children born of tubercular parents are themselves tubercular or even puny.

I can see no justification of such treatment. My conclusions, which are based upon clinical facts, as presented by others, and upon my personal observation, may be formulated as follows:

1. Pregnancy does exert an unfavorable influence upon tuberculosis in the majority of cases.
2. That the disorder remains progressive and is not arrested.
3. That only in exceptional cases, as in advanced tuberculosis with the child viable and mother nearly moribund, is the obstetrician justified in terminating pregnancy, and then only after a consultation with two or more physicians.

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[3] Dr. Wm. Duncan; Trans. Lond. Obstet. Soc., 1891, vol. xxxii; *Lancet*, 1890, p. 137.

[4] Dr. Priestley: London Obstet. Soc., 1890, vol. xxii.

THE PRESENT TREATMENT OF SYPHILIS.[1]

By RAMON GUITERAS, M.D., of New York City.

There seems to have been very little change in the treatment of syphilis during the last few years. New and elaborate text-books covering the subject have been written, atlases abounding in photographs and colored plates have been published, numerous interesting and instructive articles have appeared in the medical journals, but the same old methods seem to exist, namely, powders or black wash in the first stage, that of the initial lesion; some mercurial to be taken continuously in as large doses as can be well tolerated during the second stage; and mixed treatment or potassium iodid internally with mercurials externally during the third stage. It is principally the judgment required in treating individual cases, and the degree of intelligence with which complications and sequelæ should be handled, that mostly engage our attention.

I am aware that the subject is an exhaustive one, and I do not intend more than a resumé of the methods that a practitioner usually employs in treating this disease, and will leave the more technical points and the treatment of the various complications and sequelæ to the discussion of my colleagues.

The Treatment of the First Stage.

Primary Syphilis.—Let us first consider primary syphilis, or the initial lesion, more in detail. This may occur purely as such, or infected with a chancroidal virus as a mixed sore. What is the difference between the two? It is mainly that the mixed lesion develops more quickly after exposure, and appears in the form of a chancroid, which later on becomes infiltrated, and takes on the character of a chancre. This is generally of an ulcerating form. The initial lesion of syphilis, on the other hand, appears later, from two to six weeks after exposure, and is not so apt to ulcerate. It might be well, then, to consider hastily the treatment of the mixed sore before beginning to consider that of the syphilitic initial lesion.

The mixed sore appearing as a chancroid should be treated as such. It should be washed two or three times a day with warm water, and then covered with a bland antiseptic powder, such as iodoform, aristol, or the ABC[2] powder and a pledget of cotton. If the ulceration has increased on the second visit it should be cauterized with the silver stick or a saturated solution of silver nitrate, after the region has been anaesthetized with cocain solution, and then treated as before. This should be repeated on subsequent visits if necessary. These sores are rebellious, and gradually infiltrate and take on the form of a chancre, or modified chancre, when they should be treated as such.

What, then, is the treatment of a chancre proper, or simple chancre? In answer it may be said that it is best treated according to the form which it has assumed. It may be a dry, scaling papule, a superficial erosion (the most common form of uncomplicated chancre), or an ulcerating initial lesion (the Hunterian chancre).

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[1] Read before the Genito-Urinary Section of the New York Academy of Medicine, January meeting, 1898.

[2] ABC powder is composed of boric acid, bismuth and calomel.

In almost every case of common chancre or initial lesion that comes to me as such, the treatment is the same, and is usually attended with success. It is generally of the form of a simple erosion or ulceration. If the former, the patient is directed to wash it two or three times a day, and to dust on a mild antiseptic powder, consisting of boric acid, bismuth subnitrate, and calomel, equal parts, and afterward to put on a thin layer of absorbent cotton to absorb any discharge. Powders of iodoform, aristol or calomel are used by many, but to me the "ABC powder" seems to be the best. Iodoform is foul-smelling, aristol is not so effective, and calomel alone is occasionally irritating.

In this combined powder there are the antiseptic qualities of boric acid, the astringent and healthful action of the bismuth subnitrate, and the antisyphilitic action of the calomel. This powder is therefore very satisfactory when the lesion is situated on the glans or on either side of a retractable prepuce, or on the body of the organ, and I am in the habit of using it whenever a case presents itself. If this does not seem to have a curative effect in a few days, I usually change it for a wet dressing of black wash, which always seems to be efficient.

If it is the ulcerating form, first cauterize it with a saturated solution of silver nitrate, and then dress it with the powder mentioned in a similar manner. If it is the dry, scaling papule, I treat it generally with a wet dressing of black wash. A thin film of cotton spread over the lesion and kept moist by pouring this solution upon it is usually sufficient. This form of chancre is often at the balano-preputial margin in cases where this is somewhat constricted, and in such cases an ointment of the ammoniate of mercury, alone, or diluted, is often more efficacious than the solution.

Subpreputial lesions are often found in individuals in whom the foreskin had been previously retractable, but in whom the infiltration of the lesion was sufficient to prevent its retraction, and therefore what was a simple lesion when it was in a situation where it could be freely exposed, became much more inflamed when confined beneath the prepuce and irritated by the accumulation of smegma and its own secretions. In these cases there is often quite an amount of subpreputial discharge and considerable induration, as felt through the prepuce. The object to be obtained in treating such a condition, is to keep the lesion as clean as possible, and to make a healing application by the best means that can be employed. Here, of course, without an operation, we cannot first apply powders and absorbent cotton, or cauterize if necessary, and at the same time it is not advisable to resort to the knife if a cure can be obtained without doing so.

The method, therefore, first to be tried is that of a subpreputial astringent or antiseptic injection. This should be given every three or four hours, after first injecting plain water to cleanse the parts. The materials usually used are a weak solution of carbolic acid (1:250) or of mercuric chlorid (1:10,000), or black wash. Apparently enough of this injection remains in contact with the lesion to encourage a healing process, or to reduce the surrounding inflammatory conditions to such a degree that the prepuce can be retracted.

If, however, under such treatment, the condition seems to grow worse instead of better, a dorsal incision should be made through the entire thickness of the prepuce, and, after thorough bichlorid irrigation, the lesion should be cauterized, and then treated by local application of a powder or solution and absorbent cotton, as mentioned. This should be followed later on by a circumcision.

Chancre of the meatus occurs in about 6% of the cases of initial lesion in the male. It is usually in the form of an erosion, and is very obstinate on account of being constantly irritated by the urine passing over it. In these cases a powder is too irritating to apply, and a solution seems to produce the best results. Here, again, lotio nigra appears to be preferable, and should be kept in constant relation to the lesion by means of an absorbent cotton plug saturated with it, a fresh one to be inserted after each act of micturition, and to be worn until the next act, when another one should be inserted. In addition to this, an alkaline solution or a urinary antiseptic should be given internally to render the urine less irritating.

Extragenital chancres, which occur in 2% of all cases (according to Julien), are treated in the same manner as those on the genitals, i. e., cauterized when necessary, and treated with mild antiseptic or astringnt washes or powders.

Sometimes phagedenic ulceration occurs in chancres. This, however, is extremely rare in private practice, usually occurring only in the lowest class of hospital patients in large cities. In such cases the slough must be first removed by means of a powder of equal parts of charcoal and iodoform, or a charcoal poultice, or by an application of the hydrogen dioxid, after which the bland antiseptic powder above referred to can be used as a dressing. In these cases tonic and supporting treatment is of the utmost importance—iron, strychnin, cod liver oil and quinin should be freely given.

Excision of the chancre is sometimes performed, but I do not think it advisable, as by that time the virus has entered the lymphatic circulation, although perhaps not noticed in the glands of the groin or elsewhere. It is probable that even if we were to dissect out all the lymphatic glands in the neighborhood, that the virus would be absorbed by the veins and affect the general system.

In regard to giving mercury in the first stage I do not think it wise, excepting in certain cases when we are absolutely sure of our diagnosis, and there are conditions that demand it, as the early administration of mercury masks and delays the symptoms. It is advisable when the initial lesion may do harm to the patient or to others, as in chancre of the lip, finger, nipple, etc.; when there is extensive tissue-ulceration; or when certain disagreeable symptoms, forerunners of the second stage, have appeared, as intense headache or pains in the bones. When enlarged lymphatics appear in the groins they are best treated by iodin-compresses or mercurial ointments, but they often resist all forms of treatment until the mercury is begun.

Treatment of the Second Stage.

The Treatment of Secondary Syphilis.—This stage appears from two weeks to six months after the chancre, the average period being six weeks. During this interval the disease is being slowly disseminated through the system, as is shown by the gradual enlargement of the lymphatic glands, and by certain subjective symptoms, such as headache, pains in the bones, and a general feeling of malaise. The enlarged lymphatics are first noticed in the groin, then in the neck and epitrochlear region (inner side of the elbow), in which last situation they are almost pathognomonic of the disease. During this period it is well to put the patient in the best possible condition by regulating the diet, improving the digestion and administering a tonic of iron, strychnin and quinin. In this way the patient is not only improved physically, but also feels that something is being done for him, and he is better satisfied. Objective symptoms then put in their appearance. A macular or maculo-papular eruption usually appears on the abdomen and trunk, and the patient may have an angina, mucous patches in the mouth, a loosening of the hair, or an inflammation of the eyes—iritis. On examination at this stage, the postauricular and epitrochlear lymphatic glands are found to be enlarged. It is at this time that the physician usually begins his constitutional treatment, although some begin when they have first diagnosticated the initial lesion. It is not considered wise, however, to advise a course of mercurials when the initial lesion is the only symptom, as there is always the possibility of making a mistake in diagnosis; and again, the early commencing of mercury is liable to postpone the symptoms of the secondary stage, or to prevent their appearance to such a degree that as time advances neither the physician nor the patient is sure whether there has actually been syphilitic infection or not.

Syphilis in the secondary stage is to-day generally treated by mercury, although I have seen many cases under treatment by good physicians that were taking only potassium iodid. Various preparations of mercury are given, but the forms usually prescribed are the protiodid, in pills of 1-6 or $\frac{1}{4}$ gr.; the tannate, in pills of $\frac{1}{2}$ gr.; blue mass, in pills of $\frac{1}{2}$ gr. each; bichlorid, 1-30 gr. in pill or solution; or gray powder, in 1-grain powders.

The favorite preparation in this stage seems to be the protiodid. It is given in pill form, the strength usually being 1-6 gr. A good method of increasing the strength is that advocated by Dr. Keyes, which is practically as follows: 1 t. i. d. for the first 3 days; 1 night and morning, and 2 at noon for the next 3 days; then 2 night and morning and 1 at noon for 3 days; and afterward 2 t. i. d. for another 3 days; then 7 a day, increasing in the same manner; then 8; then 9; and so on until the symptoms of mercurial saturation begin to show themselves, such as colicky pains, diarrhœa, sore mouth, foul breath, etc., etc. When this point has been reached the same strength may be maintained, and the symptoms relieved by taking in addition a small amount of Dover's powder or some other opiate three times a day. If symptoms of salivation occur, it is a sign that the patient has taken too much mercury and it should be stopped.

It is always well to instruct the patients to be on their guard against salivation, to keep their teeth clean, and every morning on arising to click them together, and in case the gums or teeth feel sore to immediately leave off the medicine. It is well to have the teeth put in order thoroughly before beginning treatment; to brush them after each meal, and on arising and retiring, each brushing to be followed by rinsing out the mouth with listerine or borine diluted with four parts of water.

I do not believe in giving an opiate to counteract the intestinal symptoms of large doses of mercury, as it is likely to create in the patient the opium-habit, and it seems to me that it should never be used until other preparations have been tried which may perhaps be tolerated.

You will often improve the patient's condition wonderfully in cases of diarrhœa by giving iron in connection with the mercury. Atropin, belladonna, hyoscyamus also seem to prevent certain symptoms of mercurial poisoning.

Patients can usually take twelve 1-6 gr. protiodid pills a day—that is 2 gr.—although some take as many as 20—that is 3 1-3 gr. Many stop at 9, or 1½ gr. It appears to me that if the patient cannot stand 9, it is much better to try some other preparations, to see if one can be found that can be better tolerated. It is well to have the patient on the largest dose that can be agreeably borne, so long as the active symptoms of syphilis are present, and then to fall back to ¾ of this dose, and to continue on the ¾ allowance until active symptoms reappear, when the patient should again be put upon the full dose and kept upon it during their activity, when the dose can again be dropped to ¾. If the protiodid can not be well borne, I know of no better salt to try next in order than the tannate, and I am gradually becoming convinced that this is in every way a better preparation than the protiodid. The tannate may be given in pills of ½ to 1 gr. in strength, and may at times be increased until the patient is taking 5 gr. a day. This form seems to be well tolerated, and the patient obtains more mercury than by taking the protiodid. It seems to me that this salt has not been sufficiently tried by the profession. The pills are ordered as follows:

℞ Pil. hydrarg. tannici oxydulat..............āā gr. ss.
Sig. One three times a day, and increased as directed.

The salicylate of mercury is popular with a few syphilographers. They begin with 1-5 gr. three times a day, and increase accordingly.

Pil. duo. containing 2 gr. of pil. hydrarg. and 1 gr. of ferri sulph. exsic. is advocated by others, and is one of the best ways of giving the mass. hydrargyri that we have. Patients are at times able to take 2 of these, t. i. d., although 1 t. i. d. is usually sufficient. Personally I do not like this pill, as I have seen many cases of salivation following its use.

Inunctions of mercurial ointment are good for severe cases, such as those of obstinate headaches, rheumatism, iritis, etc., and when the salts of mercury cannot be well borne when given internally. Patients usually object to them, however, as they are unclean and irritate the skin. From 20 to 60 gr. may be used at each treatment, and should be rubbed in as follows: The first day, on the inner side of the legs; the second day, on the inner side of the thighs; the third day, in the iliac regions; the fourth day, over the sides of the chest; the fifth day, over the inside of the upper arms; the sixth day, over the flexor surfaces of the forearms; the seventh day, rest. These should be taken at night before retiring; a bland ointment may be applied after each inunction. Woolen clothing should be worn during a course of inunctions. Symptoms of salivation should be watched for during this treatment, as it is liable to come on very suddenly.

An interesting fact concerning the giving of inunctions in an institution, is that the attendant, or rubber, in these establishments, whose hands are constantly in contact with the ointment, seldom has symptoms of salivation. There is no reason though why a rubber should expose himself to the danger of mercurial poisoning, as the inunctions can be equally well given by the operator when his hands are covered by rubber gloves, as is a custom among them.

Kaposi considers inunctions the best method of treatment. He says that the mercury penetrates into the subcutaneous tissues, where it is transformed into soluble albuminoids, and coming into contact with the specific virus destroys its power. From 30 to 40 inunctions are usually sufficient to relieve severe symptoms, but if not, they should be continued until these have abated.

Hypodermic injections of the bichlorid of mercury have been advocated by many. They maintain that by this method gastro-intestinal irritation and dermatitis are avoided. The solutions are usually made with sodium chloride or glycerin. They inject from 1-12 to ¼ gr. of bichloride a day deep into the gluteal region. A good prescription is

℞ Hydrarg. bichloridi .... gr. j
Glycerin }
Water } .... aa j
M. Sig. Inject ten drops daily.

This is Eichler's method. Ten drops contain 1-12 gr. In using these solutions, they are given every day, every 2 days, 3 days, 4 days, or 7 days; according to their strength. They often give rise to nodosities, abscesses, cellulitis, etc. Calomel is often given hypodermically with glycerin and water, but it is not popular. Fumigations are to-day rarely used, although they are very efficacious if we wish to produce a very rapid effect, especially in late secondary lesions. Here calomel is used, from 20 to 60 gr. at each sitting. The patient is seated in a chair, with a covering or blanket extending from his neck over himself and the chair to the floor. The calomel in the pan beneath is then heated, and he is subjected to the fumes for from 20 to 30 minutes.

In regard to the efficacy of hot baths, they have no specific effect on the syphilis, but they are good as a measure of hydrotherapy. They remove the dead epithelium from the skin and improve the circulation in such a way that the mercury by inunction is better absorbed. Turkish baths are also good for this purpose. I have also noticed that patients working in hot rooms, as for instance firemen, can take larger doses of mercury than other patients. Going to a bathing resort is of the greatest value. The baths in these places are usually of sulphur or alkaline water. These baths have no specific effect on the syphilis, but they are valuable on account of their stimulating effect on the system, and the tissues are put in a more receptive condition for the antisyphilitics used. The patients are able to take larger doses of mercury and potassium iodid than when at home; in other words tolerance of the remedies seems to be increased. The change of air and scene, and the regular life at these places, are also of the greatest benefit to the patient, both in the secondary and the tertiary stages in syphilis.

The Treatment of Some of the Special Manifestations of the Secondary Period.

Local applications during the secondary period are frequently made, as in the following instances: Occasionally on the forehead there are a number of lenticular papular lesions forming a corona veneris. In this case it will be well to apply the ammoniate of mercury ointment on a piece of sheet lint on retiring and to allow it to remain on over night. This seems to hasten their disappearance. Ecthymatous, impetiginous and pustulo-crustaceous syphilids are also benefited by the same applications. Palmar syphilids are also objectionable. These cases are of the squamous variety, and may also be treated by the white-precipitate ointment alone, or mixed with equal parts of the zinc-oxid or boric-acid ointment. In onychia and paronychia the ammoniate of mercury should be applied locally, and a glove-finger worn over the parts for protection. Moist papules about the genitals are best treated by the powder of bismuth, boric acid, and calomel already alluded to, with a dressing of absorbent cotton to keep them dry. In case of mucous patches in a man's mouth, his tobacco should be cut off, and he should use a mouth-wash of 1:2,000 bichloride solution in peppermint water 4 or 5 times a day, in addition to which an application to the patches should be made every 3 or 4 days with a one-in-eight solution of silver nitrate, or 4% chromic-acid solution. The best way of doing this is by twisting a thin film of absorbent cotton about the end of an applicator or a toothpick and then moistening it in the solution, when it is applied to the mucous patch until this becomes whitened.

In syphilitic alopecia the head should be washed night and morning with a 1:1,000 solution of bichlorid, or an ointment of ammoniate of mercury and boric acid may be applied.

In iritis, a four-grain-to-the-ounce solution of atropin, if instilled 4 times a day, is usually sufficient to keep the pupils dilated. This may be increased in strength if adhesions are forming. When opiates are being taken by the patient, a still stronger solution is sometimes necessary. In addition to this, the eye is washed out with a mild solution of boric acid as often as necessary, and in severe cases hot applications are at times kept upon the lids. If permanent adhesions between the iris and the lens result, iridectomy may be performed. Local mercurial inunctions above the eyebrow on the affected side are also of service.

The angina accompanying the acute stage may be treated by the solution of 1:2,000 bichlorid of mercury in peppermint water above referred to, as a spray or gargle, or by a solution of 15 gr. of zinc chlorid in one ounce of listerine and three ounces of water.

Of course, in all these cases the internal treatment remains the same, and throughout the entire period of the second stage the patient should be kept in the best possible health. His digestion should be carefully watched and his diet regulated. He should have plenty of plain food, fresh air and exercise. Stimulants can be indulged in if well tolerated, but should be limited to light wines with the meals, spirit being strictly interdicted. Smoking in moderation may be allowed if it does not irritate the mouth and cause mucous patches. Sexual intercourse should be forbidden until all active symptoms of the disease have disappeared.

Some keep the patient on mercury for two years. It is my custom to give it for one year and then to change it to mixed treatment, which I continue for another year. In prescribing this I order 1-6 gr. biniodid of mercury and from 3 to 7½ of potassium iodid in the compound syrup of sarsaparilla. After the two years of treatment have been completed, I frequently recommend my patients to take mixed treatment for a period of 6 weeks every spring and fall for 2 or 3 years.

In the secondary stage of syphilis I never give potassium iodid, excepting in precocious cases in cachectic individuals when dangerous symptoms, such as those of the nervous system depending upon central gummatous deposits, have appeared, or when from similar lesions a destructive process has started in the respiratory or genito-urinary tract or elsewhere. Here the same method should be used as in treating such cases during the tertiary period, for they are really tertiary troubles which have appeared before their time. We should therefore use inunctions or mixed treatment in connection with increasing doses of iodid, together with tonic and supporting treatment, and if the case does not improve under such treatment at home, the patient should be sent to some of the bathing resorts where larger doses of antisyphilitics seem to be better tolerated.

For the toxic effects of the mercury, stomatitis or gingivitis, usually accompanied by ptyalism from the overdosing of mercury, a saturated solution of potassium chlorate, alternating with one of boric acid, will do good as a mouth-wash. If the ptyalism is marked, it may be controlled by small doses of atropin. It is important, however, never to give toxic doses of mercury, but only to keep it up to its physiologic limit, in which case it is a tonic and not a depressant as when taken in too large amount.

The Treatment of Tertiary Syphilis.

Tertiary syphilis occurs in about 10% of the cases and puts in its appearance from three to twenty years later. It is much less frequently seen in private practice. Its commonest manifestations are tubercular and gummatous lesions of the skin; periostitis, osteitis, osteomyelitis or dactylitis; rhinitis, pharyngitis or laryngitis; orchitis or epididymitis; multiple neuritis or gumma of the brain or cord, and scleroses. These forms are best treated by potassium iodid internally and some preparation of mercury, as the unguentum hydrargyri or the unguentum hydrargyri ammoniati locally. Potassium iodid, a grain to the drop, may be given in water or milk with the compound sarsaparilla or the syrup of orange-peel, and may in some cases be run up to 200 gr. a day, which is usually sufficient to control any active tertiary lesion. As high as 800 gr. of this salt a day have been given. They say that this should be taken on an empty stomach, but I do not think that the presence of a little food does any harm. A preparation known as McDade's formula has also been much used as an adjuvant to the potassium iodid. It is taken in dram doses before meals.

Syphilitic orchitis and epididymitis are treated by mixed treatment and potassium iodid internally, and equal parts of unguentum hydrargyri and unguentum belladonnæ externally.

Dactylitis, occurring in tertiary syphilis, is a condition in which the fingers or toes may be the seat of a gummatous infiltration, either in the connective tissue or fibrous structures of the joints or in the periosteum or bone. For this condition we can give iodid singly or combined with mercury, tonics internally and mercurial ointments locally. If ankylosis is inevitable, we should strive to have it occur with an extended finger. If necrosed bone is present, it should be scraped away with a curet.

For syphilitic rhinitis either inunctions or mixed treatment combined with potassium iodid in increasing doses should be given internally. If the gummatous infiltration is in its first stages and there has been no loss of tissue, detergents, such as Dobell's solution, or bichlorid-solution, 1:20,000, should be used locally as a spray or an irrigation. If, however, this breaks down the remaining lesion may be treated by the application of silver nitrate, iodoform or black wash. If the process continues still further and dead bone results, it should be removed if possible. This can sometimes be best reached by dissecting up the lip and the soft parts while the bone is being removed.

In syphilitic pharyngitis the same treatment is employed externally and internally. The adhesions may be cut by a knife or the galvano-cautery, and new formations may be treated with monochloracetic acid. When laryngitis occurs, potassium iodid internally and sprays of bichlorid, or a preparation of the yellow oxid of mercury and vaselin may be employed locally. Papillomas may be removed by the cutting dilators, by snares, or by being cauterized with acids.

Bone-Syphilis.—In periostitis, osteitis and osteomyelitis, the mixed treatment and the iodid are used internally and a mercurial ointment externally. In gummata affecting the periosteum, which are soft, red, and glazed at times, it is best not to open them unless suppuration has taken place. These may be cured by internal treatment. In osteomyelitis, when there are great pain and enlargement, if cutting down through the periosteum does not relieve the symptoms, it may be necessary to trephine the bone.

Nervous Lesions.—Neuritis (multiple), sclerosis as locomotor ataxia, gumma of the brain and cord as evidenced by aphasia, hemiplegia and paraplegia, are best treated by inunctions or mixed treatment combined with large and increasing doses of potassium iodid. In the ordinary cases of tertiary syphilis good results are obtained by giving the "mixed treatment internally and using mercurial ointment externally, and it is only when some serious or active process takes place that it is necessary to give the very large doses of iodid. It appears to me from observation in these tertiary troubles that we obtain better results from large doses taken in connection with the "mixed treatment."

The conditions which indicate the use of iodid are an excess of cell-growth and an accumulation of the same either from the renewed activity in the residua of the antecedent disease, or from a crippling or obliteration of the lymphatics, due to the long-continued hyperplasia and irritation of the secondary stage (White).

As we have the toxic manifestations of mercury during the second stage, so we have the toxic effect of potassium iodid, known as iodism, in the third stage. The symptoms of too much iodid are gastro-intestinal irritation, coryza, lacrimation, mental depression, tinnitus aurium, acne and other cutaneous manifestations. Thin says: "The rationale of iodid eruptions seems to be that there are conditions in which iodin, when present in the blood, attacks and disorganizes the blood-vessels at certain localized points, and as a result of this injury to the wall of the vessels there is an escape of blood fluid into the surrounding tissues."

Hereditary Syphilis.—This shows itself in infants, usually appearing before the end of the second month. If it occurs during the first few days after birth it is usually fatal. The symptoms of syphilis in infants are coryza (snuffles), erythematous eruption, mucous patches about the mouth and genitals, or pemphigoid eruptions on the palm and soles. As soon as any of these symptoms appear the patient should at once be put upon mercury. It is surprising how much mercury infants can stand, without producing symptoms of salivation. The preparations usually used are blue mass well diluted with vaselin for inunctions; calomel in 1-10 gr. doses with sugar of milk 4 times a day, or gray powder 1 gr. 4 times a day. For the snuffles, nasal irrigation of boric acid, 20 gr. to the ounce, are of value. For other lesions an ointment of boric acid, the ammoniate of mercury and zinc oxid, or a powder of calomel, bismuth and boric acid should be used locally.

LEE METFORD AND DUM DUM BULLETS CONDEMNED.

During the recent convention of German surgeons at Berlin, Prof. Bruns, of Tübingen, related how the English colonial troops, during the late Indian war, filed down the points of bullets in order to do more damage. He showed the effects of such bullets on a number of parts of cadavers. When the bullet struck bone it splintered it in all directions, oftentimes cutting out entire sections; when it struck soft tissues it ploughed its way through, tearing away chunks that would have done credit to a small cannon ball. The mutilation was so great that he felt himself justified in calling such bullets inhumane, in contrast to the humane pointed bullet. He concluded with the plea that at the coming St. Petersburg convention the German delegation would do their utmost to have such bullets forbidden in case of war in Europe; that they wished to make the enemy incapable of fighting, but not to mutilate or kill him. The address was received with satisfaction, and Lieutenant-General von Colar, physician-in-chief of the German army, who had listened with intense interest, immediately proceeded to interview Professor Bruns and examine the specimens.

Reference was made to this practice in the May number of Gaillard; the bullets referred to being the Lee Metford. The result produced by the Dum Dum bullets were practically the same, or even worse. As there explained, however, the small bullet of high velocity did not prove effective in stopping a man in time. Where filed off they did stop him.

SELECTED ARTICLES.

ISOLATION IN INFLUENZA.[1]

By ERNEST W. WHITE, M.B., Lond., M.R.C.P.,
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The recent epidemic of influenza in the City of London Asylum having been successfully cut short by isolation, and the former epidemics in the institution since 1889 having been similarly treated, with equal success, I am prompted to give a brief account of these visitations, and the means adopted to arrest the extension of the disease.

We will commence with the latest outbreak: on February 10 I find a note in my superintendent's journal as follows: "Influenza has broken out in the female division (main block); four patients and a nurse were removed to the cottage hospital to-day." This hospital is usually tenanted (to guard against dampness) by 20 farm patients, who can be removed at an hour's notice. Our wards and dormitories in the main division of the asylum are only separated by glass screens, but the dining hall, chapel and kitchen intervene between the male and female sides. The laundry block is attached to the female division by a covered way, as is the workshop block on the male side. The cottage hospital is distant 120 yards from the main building. Our resident community consists of 540 persons (250 female patients; 215 of these in main block, 35 in laundry), with 35 nurses, laundry maids and servants, and 230 male patients, with 25 attendants and resident artisans. On February 11 six patients and a nurse were removed to the cottage hospital with the disease, and the chief nurse was under treatment in her rooms away from the wards. On the 12th, five more patients were transferred to the cottage hospital with it. On the 13th, 11 patients and a nurse were removed to the cottage hospital, and 3 patients and a nurse were under treatment in the main building, but isolated, and with sheets saturated with carbolic acid solution over the doors of their rooms. On the 14th, 2 patients and a laundry maid were removed to the cottage hospital with it. The chaplain (non-resident) was also confined to bed at his home. On the 15th 1 patient was sent to the cottage hospital, and 1 old patient was placed under treatment in a small dormitory off the female infirmary. On the 16th there were 2 deaths of patients from influenza, ages 72 and 81; 1 other old lady, aged 90, was placed under treatment in the small dormitory off the female infirmary. On the 17th there was 1 death from it, age of patient 76. On the 18th 1 patient was removed to the cottage hospital, 3 old ladies (over 75) were placed under treatment in the small ward off the infirmary. On the 19th 1 patient was sent to the cottage hospital and 1 old patient placed under treatment in the dormitory off the infirmary. There was also 1 death from it, age of patient 81. On the 24th there was 1 death from it, age of patient 82. On the 25th 1 of the 2 male attendants who carried the female patients to the hospital went down with influenza, and was isolated in the male end of the hospital; and on the 28th the other male attendant who helped to carry the patients to the hospital also developed it, and was isolated in male end of hospital.

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[1] *The British Medical Journal.*

The male division has throughout been free, with the two exceptions named, and accountable for. The laundry block has also been free, although only 30 yards from the main building, with the exception of the one laundry maid, who was the person who carried the linen from the laundry to the female division and entered the wards. She fell ill, her temperature was taken, and she was sent to the hospital at once.

The following are extracts from my annual reports since 1889 under the heading "General Health," and refer only to the influenza epidemics:

1890.

Epidemic influenza visited us at the beginning of the year. The first cases occurred on January 4, and we were not free until March 10. In all 23 members of the staff, including all the officers and 20 patients, suffered. The disease was in some cases of a severe type, and relapses occurred, but we escaped without a death. Several patients had acute tonsillitis as a sequela. It was apparently brought into the building by the attendants and nurses, as it was prevalent in the neighborhood, and 6 of the staff were first attacked. I therefore had the cases isolated in the detached hospital, and as a result a very small percentage of patients fell ill with it. Our resources were severely taxed during the epidemic, but we were able to tide over the crisis without obtaining outside assistance, thanks to the self-sacrifice of the nursing staff, which it affords me no small amount of pleasure to record. During the remainder of the year the general health was in every way satisfactory.

1891.

Epidemic influenza visited us for a second time on May 20. The first case was that of one of the housemaids; then, on the 28th, six male patients in No. 5 ward contracted it, probably through one of their number who is employed in the carpenters' shop. On June 8 a male charge attendant and one of his patients fell ill with it. On the 15th we had three more cases, all members of the staff, and on the 20th two male patients took it. We have since been free until the commencement of the present year.

1892.

During January, February and March we had a third epidemic of influenza of a severe type. At its outset, 3 male attendants of fine physique contracted it; then 2 nurses and a female patient; then the head male attendant and two other attendants, all strong, healthy men; then I went down with it; next the chief male night attendant; then in succession a laundry maid, 3 nurses, 14 patients, the chief night nurse and two other patients. It was of the broncho-pneumonic type, leaving its victims extremely debilitated for many weeks. This outbreak is accountable, directly or indirectly, for 7 of the deaths of 1892.

On July 11, a fourth epidemic of influenza appeared, fortunately of a comparatively mild, though definite type. It was confined to one male and 8 female patients, who all, save one, who was suffering from pulmonary phthisis, made good recoveries. During every epidemic we have isolated our cases in the cottage hospital, believing, as I do, the disease to be distinctly infectious.

1893.

About the close of the month of February there were several mild cases of influenza affecting both staff and patients.

1894.

Early in the year, several cases of influenza were recorded, none of a severe type, and all made good recoveries.

1895.

Influenza of a comparatively mild type visited us towards the close of February, and remained with intervals of freedom until the end of April. Thirteen members of the staff and 6 patients had it, and all excepting two were isolated in the cottage hospital. The relatively large proportion of staff to patients is a further proof of the infectious nature of the disease and of its having been introduced from without.

1896.

Early in March two attendants and several male patients had influenza, and were isolated in the cottage hospital.

1897.

For the first time since 1889 I have no epidemic of influenza to record.

Means of Isolation Adopted.

As regards the recent epidemic, on February 10 I recognized that we had a definite outbreak. I therefore gave orders that the female division (main block) was to be isolated as far as possible: that the male and female patients were not to meet at chapel or the dining hall; that the meals were to be in the wards, the dining hall to be kept master locked: and the chapel service on Sundays to be attended by male patients only; the female service being held in a ward. All association of the sexes thus came to an end. The laundry residents were also to be kept away from the main division. The charge nurses were instructed to take the temperatures of all their patients who appeared to be at all out of sorts, and if the thermometer registered a temperature above 100°, the patient was at once to be wrapped up, and taken over to the cottage hospital. Patients over 70 years of age were to be treated in a small dormitory off the female infirmary; carbolized sheets at the doors to be used to prevent infection being conveyed by these patients to the other ward residents. All patients sent to the cottage hospital were to remain there a week at least, and there was to be no communication between the hospital and the asylum. At one time we had 30 cases under treatment in the hospital. In all previous epidemics since 1889 we have adopted similar methods of isolation with equally good results.

I am of opinion that in this last epidemic the disease was brought to the asylum by my clerk (non-resident), who plays the piano in the dining hall during dinner, and who gave the influenza to a lady patient, who sits near the piano, and who was the first resident attacked.

TREATMENT OF ANGINA PECTORIS.

Sir Douglass Powell, in a Lumleian lecture recently delivered by him before the Royal College of Physicians, of London, devoted a portion of the essay to a discussion of the treatment of angina pectoris, and this portion ot the letter we produce herewith:

The etiology and morbid mechanism of angina pectoris are difficult enough to formulate with regard to prophylactic and remedial treatment. The difficulties diminsh when we recognize that there is a continuity in the phenomena presented to us for treatment from the slighter degrees of introspective recognition of the cardio-vascular mechanism, through the more distinct evidence of cardiac anxiety and distress in connection with the higher and more persistent grades of arterial tension to the paroxysmal attacks of acute breast pang associated with a veritable asthma of the blood vessels which may supervene in any cases of the series; and this continuity is to be observed between so-called false and true angina, although some authors will not admit the term angina except as applicable to the fatal cases of coronary origin.

In a large proportion of cases angina pectoris is an entirely functional disorder, the main feature of which is sudden increase of blood pressure and a correspondingly sudden call upon cardiac effort; it may be on the systemic, it may be on the pulmonary, side of the circulation that the strain arises. The causes of this arterial spasm are almost all within our scope of remedial treatment, and the neurosis that favors its occurrence is subject to considerable modification and control. In all these cases whilst it is the heart that suffers the angina, the conditions which originate that suffering are outside the heart. There is no essential difference save in degree, and not always in degree, between cases of angina in which the heart is sound and those in which it is unsound, but there is every difference in the gravity of prognosis and the urgency for treatment. The cause of distress is contraction of the peripheral or general visceral or pulmonary vessels, giving rise to muscular strain of one or both cardiac ventricles suddenly induced and of a cramp-like character.

The cardiac pain in vasomotor angina is difficult to explain satisfactorily; it is distinctly a result of intraventricular pressure, and from its character and radiation it must be primarily an affection of the sensory nerves of the heart caused by stretching of its tissues, so that the contraction of the tissues is attended with pain. The endocardial surface is more sensitive than the pericardial surface, but comparatively insensitive tissues when stretched become verp painful. Dr. Allen Sturge observes that reflected pain is only an ordinary sensation conveyed to a nerve center in commotion, by which it is intensified to a painful sensation. Thus may the reflected pains be accounted for as emanating from the centers disturbed through the cardiac nerves. On the other hand, we have only to conceive a slight degree of hyperæsthesia of the organic nerve centers to account for that undue perception of the cardio-vascular mechanism which is the first grade of neurotic disturbance, and which can readily become a painful perception of increased pressure within the heart.

The pain, which is to a certain extent the measure of the strain upon the heart, is to be attacked by remedies which relax arterial spasm. Amyl nitrite, nitro-glycerine, and the nitrites generally, but especially nitro-glycerine (1 min. of the 1 per cent. solution), may be given at intervals of five minutes for 2, 3, 5 or more doses, and at the same time that the antispasmodic is given an appropriate cardiac stimulant is required. In the more purely neurotic cases it is most desirable to avoid alcohol. There is no better stimulant than slowly sipped hot water. Dr. Brunton has pointed out that sipping is a physiological stimulant to the heart, and hot drinks tend to relax arterial spasm. A prescription for a carmanative draught, including ammonia, chloric ether, and valerian or cardamoms, is valuable to be taken in several sips. Warmth to the surface, and especially to the extremities, are the further requisites.

The second stage of these cardio-vascular attacks is one of reaction and excitement, to be followed by fatigue. Often by the time the medical observer arrives the cardiac pressure has already been relieved through the depressor nerve of the heart excited by intraventricular pressure bringing about relaxation of arterial spasm, the first violent throbbing or the threatened standstill of the heart has already yielded to quick, perhaps somewhat irregular, beats, the tension of the pulse is no longer apparent, and this fact has no doubt led many observers to question the alleged mechanism of this form of angina. With a few hours' rest in bed the patient may again be fit for the duties of life, although usually a sense of lassitude and fatigue remains for a few days. It is now that the cause of the attacks must be sought out, the conditions of the heart carefully ascertained, and the daily life, diet and surroundings and functions of the patient must be investigated and corrected where in error.

If there be no heart disease present, the patient must be thoroughly reassured on that point; but if heart lesion be present, much more attention must be given to the after-treatment, and the prognosis depends upon the nature of the lesion present. I would briefly say that the gravest cases are those in which there is enlargement of the heart without, or not accounted for by, valvular defect. I would mention the fibro-fatty heart, the syphilitic heart, the renal heart in this category. Aortic stenosis and aortic regurgitation come next, the regurgitant defect being by far the most common. Mitral stenosis is not infrequently attended with anginal seizures, sometimes of a fatal kind, and the attacks would probably be more frequent were it not for the readiness with which pulmonary hæmorrhages occur. Mitral regurgitation as the primary disease is rarely accompanied with angina, and when it supervenes on cases due to degenerative hypertrophy and dilatation it tends to preserve the patient from future attacks. On all these cardiac conditions anginal attacks may supervene, having precisely the same mechanism as the attack unattended with cardiac disease. It is most important to bear this in mind, for the treatment is precisely on the same lines, only it must be more urgently pursued.

The initial treatment may be started with nitrite of amyl inhalation, and the patient should always have the drug at hand. But the attack is commonly attended with such acute heart failure that the clinical features of high pressure pulse and laboring heart may be immediately lost. Undoubtedly, the subcutaneous injection of pure ether, to which a minim of nitro-glycerine solution may be added, if not already otherwise taken, is the best treatment in severe cases if caught at the right moment. The sense of prostration is greater and more defined in these cases. Alcoholic stimulants, so much to be avoided in pure vasomotor cases, are in these imperative. A full dose of brandy should be given in some hot drink. In those cases, and they are many, in which flatulent distension forms a marked feature of the attack, if it be not concerned in producing it, a draft of ether, ammonia, soda, cardamoms and spirits of chloroform is of much service at the earliest stage.

The heart is left in an exhausted or fatigued condition after the attack, and there is a decided tendency to a series of several attacks. For this a mixture of strychnine or caffeine may be prescribed with digitalis, so that 15 or 20 minims of liquor strychninæ and 20, or 30, or 40 of tincture of digitalis are given in 24 hours, and the strychnine may be given subcutaneously in, of course, equivalent doses, or the caffeine in the form of salicylate. It is probable that digitalis and strychnine influence the heart muscles before that of the vessels, but if the pulse become tightened, as it may be in exceptional cases, the digitalis must be lessened or its effect on the vessels moderated by the addition of ½ minim or 1 minim doses of nitro-glycerine to the prescription. There is another remedy which is a powerful restorative to the fatigued heart, and that is oxygen inhalation, which may be given for five or ten minutes every hour or two or three hours as may be required.

These cases often come to us with a history of a recent attack, and we have to consider what form of angina it has been, how to avert fresh seizures and how to repair, if it may be, the failing heart which renders each attack so dangerous.

The presence or absence of heart disease must be rigorously ascertained:

1. The soundness or otherwise of valve function.
2. The presence or absence of enlargement, dilatation, or hypertrophy of the organ.

It is important not to form too hasty a judgment, and it is often impossible to come to a final diagnosis at or immediately after a seizure. In tumultuous action, whether from excitement or violent work, the locomotion of the heart is greatly increased, and an inexperienced observer is apt to find great enlargement, displaced apex beat, etc., when none exists. On the other hand, one hears it sometimes maintained at inquests and the like that considerable organic disease of the heart may exist without any recognizable signs. I would venture to say that a careful investigation of the sounds and dimensions of the heart will always establish in such cases a displaced apex beat, an increase in the dimensions, or a recognizable alteration in the sounds of the heart. The converse is, however, frequently true, namely, that much alteration in the heart is conceived to be present when none exists. It requires great precision and diagnostic courage to prove a negative, and in the presence of functional disturbance and discomfort and anæmic *bruits*, mistakes in diagnosis are very frequent and easily made.

With mitral regurgitation of rheumatic origin, high tension pulses do not often supervene, but mitral insufficiency is frequently a sequel to the dilatation of the heart consequent upon chronic high tension and secondary cardio-vascular changes, and under these circumstances it is undoubtedly a safeguard against over-distension of the ventricle. I have seen cases in which the establishment of mitral incompetence has produced a cessation of anginal attacks which had previously occurred from time to time. In senile hearts mitral regurgitation is common, and is not to be looked upon seriously, but rather as a favorable element in prognosis, a condition normal to the senile heart.

YELLOW FEVER AND THE WAR.[1]

The report published last week that yellow fever had developed in members of a prize crew on one of the captured Spanish vessels held at Key West, naturally causes some apprehension at this particular time. "Yellow Jack," always a most unwelcome guest, would be especially so now, despite the excellent facilities at the command of the Marine Hospital service for preventing or stamping out an epidemic. The great importance, however, to the United States of the yellow fever question lies in the fact that there will probably be an invasion by our troops of territory in which the fever prevails each year with considerable virulence. It will be well for us, therefore, to learn our lesson from past rather than from present and future experience. We must not forget that armies have been decimated in the West Indies without a man being lost at the hands of a human enemy. A century ago, according to John Hunter, who was a surgeon in the English army in Jamaica, scarcely a man was left in some regiments at the end of a year, although the number killed in battle was almost nothing.

All authorities agreed upon this point: that it is the newcomer, and especially the unacclimated soldier, who suffers to the greatest extent. The ravages of former times among European troops are hardly to be anticipated in an American army of invasion, because we now know that hygienic conditions which military authorities can control have much to do with keeping down the death rate. Our soldiers would, for example, not be landed in an impaired state of health after long voyages in overcrowded vessels. The food supply would be much superior to that of former days, and quarters would be so far as possible chosen at a distance from swamps, while the water supply would be much more carefully controlled. Overcrowding and lack of sufficient air space have been important causes of the high death rate in barrack and hospital in former West Indian campaigns—conditions not now so likely to exist, since their danger is so well appreciated.

In spite, however, of all that is known of the dangers of yellow fever and of the means of prophylaxis, many deaths might occur among our men from a lack of knowledge of proper personal conduct under the new conditions of life. It would be well, then, that each man should receive instruction as to his mode of living. In a little book just published in London, on "Yellow Fever in the West Indies," the author, Dr. Izett Anderson, states that after an experience of more than thirty years he can say that undue exposure to the sun in the heat of the day is the most potent exciting cause, and next to this are intemperance and debauchery.

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[1] *Medical Record.*

Earth freshly upturned, as in the digging of trenches, is a source of danger which it might at times be impossible to guard against. Past experience, however, should guide in sending troops into a yellow-fever region to engage in such work, since it has been found that the most susceptible subjects come from the more northerly and colder regions, while colored-skinned races are but slightly endangered. Then, too, those who have acquired immunity by previous exposeure should be first utilized.

We cannot here enter into the importance of an early diagnosis of the first cases in a community, or of the difficulties at times attending the detection of the affection by physicians who have had no practical experience with the fever. The author above referred to dwells especially upon the dangers of faulty diagnosis—in instances in which the disease is seen for the first time by the physician—in the stage of depression or decline of the fever, when the symptoms may be limited almost to cutaneous capillary hyperæmia and conjunctival injection, and when the patient expresses himself as feeling well again. The treatment he recommends embraces an attempt at abortion of the process by administering twenty grains of calomel, together with twenty or more grains of quinine, and repeating the dose if necessary at an interval of three or four hours; and if the fever remains high, even a third dose may be given. This must be employed early in the first stage, and is particularly suited to sthenic cases in plethoric soldiers, especially those who have recently arrived in the infected region.

As a routine treatment he has employed for many years:

Acidi carbolici	gr. xviij.
Potassii bicarbonatis	ʒ iij.
Aquæ	℥ xij.

Of this two ounces are to be given well iced every two or three hours, a dessertspoonful of freshly squeezed lime juice being added to the effervescing mixture at the time of taking.

Among other measures recommended are wet packs to the body; "iced drip" to the head; dry cupping to prevent or relieve suppression, together with drachm doses of spirits of nitrous ether every hour; and bromide of ammonium in full dose given in iced milk for insomnia. He speaks favorably, too, of Sternberg's formula:

Hydrargyri bichloridi	gr. $\frac{1}{3}$
Sodii bicarbonatis	gr. cl.
Aquæ	℥ xl.

S. Three tablespoonfuls given every hour, given ice cold.

It is gratifying to note that the government is taking most active measures to solve this great war problem, and that an officer of the Marine Hospital service has been detailed to accompany the army of invasion, whose special duty it shall be to secure for our soldiers all the protection possible from this hidden enemy. Among the measures to be carried out are the establishment of a base of supplies at a distance from any yellow-fever center, and prevention of communication between the army and infected localities.

The latter will naturally be a most difficult thing to accomplish. The only absolute safety would seem to lie in terminating the war in Cuba before June, when the annually recurring epidemic in and about Havana makes its appearance, or in so far accomplishing this end that the native army, assisted by immunes, could complete the work and permit susceptible Northern troops to return to the States.

We have the utmost confidence in the ability of our Marine Hospital service to accomplish by vigilance and scientific sanitation all that it is possible to do in the matter of detecting early evidences of danger and carrying out segregation. A disease, however, which presents such an appalling mortality in severe epidemics and under certain conditions, should likewise be regarded as an enemy to be combated until conquered. No doubt this will be one of the results of the present warfare, for it may be predicted that with Havana under United States control the unwholesome conditions which have permitted this yearly visitation of yellow fever will be done away with and the city made as safe from June to November as it is from November to June.

It has been pointed out by authorities, and former experience in our own country has shown it to be a fact, that old wharves with their rotting timbers, unpaved streets, collections of decaying vegetable matter, and lack of proper sewage all contribute to epidemic outbreak. Such sanitary defects are abundant in Cuba's capital, and it will become our duty at no distant day to fortify the city by modern hygienic improvements for the benefit of humanity at large.

ACETYLENE, THE NEW ILLUMINANT, AND THE DANGERS ARISING FROM ITS INHALATION.[1]

By THOMAS OLIVER, M.A., M.D., F.R.C.P.

As the subject of acetylene illumination is at present attracting public attention owing to the ease with which the gas can be generated and the likelihood of its being used pretty widely throughout the country, it may be well to point out to your readers certain facts connected with the medical side of the question. In the article referred to allusion is made to the greaetr explosibility of acetylene compared to ordinary coal gas. A mixture of air and acetylene commences to be explosive when it contains 5 per cent. of acetylene, whereas it requires the presence of 8 per cent. of coal gas to make a similar mixture explosible. This, therefore, is one of the dangers attending the use of the new illuminant, and its excessively pungent and disagreeable odor, though a warning to the individual of its presence, is one of its disadvantages. Experimenting with calcium carbide, from which the gas is obtained on the addition of water, my colleague, Dr. R. A. Bolam, and myself had ample evidence in the Physiological Laboratory of the unpleasant and penetrating odor of acetylene, the rapidity with which the gas is evolved immediately, and of the great heat which is generated. This latter circumstance would point to the absolute necessity of having acetylene, if being made for private mansions, generated in the open air or in a covered shed open at the sides.

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[1] *The British Medical Journal.*

Our experiments were directed rather towards an investigation of the poisonous properties of the illuminant when inhaled compared with coal gas. In the case of coal and water gas, death supervenes by asphyxia owing to the carbon monoxide, so largely present in these gases, entering into extremely stable combinations with the hæmoglobin of the blood, from which it is with difficulty dissociated. It is the absence of odor in water gas that renders it so dangerous; its influence is so subtle because of its presence being unperceived. Under ordinary circumstances a short period is sufficient to asphyxiate an animal by coal gas. With the assistance of Dr. Bolam I have tested the effects of acetylene. If a rabbit, for example, is placed in a bell jar into which ordinary air and acetylene are pumped, the animal seems for a very long period to experience very little inconvenience. It is not until ordinary atmospheric air is excluded and only acetylene admitted that symptoms gradually and slowly develop. This circumstance shows that so long as there is any oxygen in the aërial medium by which the animal surrounded it is the oxygen which is absorbed into the blood and very little acetylene. After a more lengthened exposure to acetylene than that which is necessary for coal gas the animal becomes intoxicated, it falls over on its side apparently profoundly asleep, and while all through the experiment its breathing has been somewhat short and rapid, stupor steals over the animal apparently painlessly, for there is not exhibited anything of the excitement, nervous or respiratory, which is seen in the narcosis produced by such poisonous vapors as bisulphide of carbon or benzole, or even in ordinary asphyxia. Where somnolence has been induced and asphyxia not pushed too far the rabbit, when removed from the bell jar and placed in ordinary atmospheric air, begins to move about in a few seconds in as lively a manner as if it had not been interfered with, there being neither weakness nor paralysis of its limbs. In a word, a few inhalations of atmospheric air are sufficient to restore to the animal all its faculties.

Should the inhalation have been pushed further and the animal have been very deeply asphyxiated, death may ensue, the cyanosis hitherto observed being rapidly replaced by extreme pallor. In the minor and easily recoverable stages of asphyxia the vascular tension is still maintained, and there is no difficulty in obtaining a drop of blood for examination; but when the deeper stages are reached so extremely contracted are all the vessels that it is almost impossible to obtain even a trace of blood. When this stage has been reached recovery is difficult. It is interesting at this point to mention that when we examined the blood of a rabbit at different stages of intoxication from acetylene, and especially in the deepest asphyxia, this fluid on spectroscopic examination always exhibited two well-marked bands of oxyhæmoglobin; also that unlike the blood in coal gas poisoning, although resembling it in the cherry-red color, which it presented, it was readily reduced on the application of ammonium sulphide and gentle heat. To that extent, therefore, if the asphyxia caused by acetylene is not too profound—and under ordinary domestic circumstances it would not be a pure acetylene atmosphere that would be inhaled by an individual, but one mixed with a large proportion of ordinary air—

the danger to life seems to be less than it would be in coal-gas poisoning, and the prospect of recovery by removal to atmospheric air greater. Death may supervene, however, if the inhalation has been lengthened and atmospheric air excluded.

A rabbit which was profoundly asphyxiated by acetylene, whose lips were extremely pale, its arteries, comparatively speaking, empty, pupils widely dilated, breathing short and irregular, and muscles completely paretic, died after removal from the bell jar, death being preceded as in anæmia of the brain by opisthotonos and convulsions first of the fore limbs, then of the hind, and subsequently the tremors became general. At the necropsy the heart felt hard to the touch, and was firmly contracted; both auricles and ventricles were filled with dark clot; the lungs were pale; the liver not unduly filled with blood; the kidneys showed a dark venous coloration at the junction of the cortex and medulla, while the vessels on the surface of the brain were pale and empty, and on section the brain tissue was extremely pale. The bladder was distended; the urine was quite free from albumen and sugar. The general pallor throughout was striking.

The rabbit died long after its removal from the acetylene atmosphere, after it had been breathing for twenty minutes ordinary air superficially and irregularly. The condition of the heart found at necropsy is scarcely that observed in asphyxia; some other factor, therefore, contributed to the death of the animal, a point to which I may allude in a subsequent communication.

THE TRAINING OF GIRLS IN RESPECT TO THEIR PHYSICAL DEVELOPMENT.[1]

The manner in which girls are brought up nowadays is vastly different from that of but a short time ago. Mothers even of the past generation would have eyed askance the methods now used in the mental and physical training of daughters, and which are regarded as indispensable to the production of a nineteenth-century woman. But the question is whether the course pursued is in every respect a wise one, and whether the old system of teaching a woman to read a little and to write a fairly grammatical letter, while allowing her to reserve sufficient strength and energy to develop into a healthy mother and housewife, had not much to commend it. That a girl should have the opportunity of being thoroughly educated is freely granted—in fact, in the existing state of affairs it is necessary that she be able to earn her own living; but the tendency of education now is unduly to develop the mind at the expense of the body. It is true that physical culture plays a part in the training of the girl of to-day, but it is doubtful if the methods employed are the ones best calculated to attain the desired result. Up to the age of puberty there is comparatively little difference between the sexes. When, however, that period arrives, the entire system undergoes a change, the asexual girl becomes a woman, and it is at this time that the greatest care should be exercised in her training. The old-fashioned girls' boarding-schools, with their perfunctory education, have passed out of existence, and the movement for the higher education of women has, after much jeering and scoffing, gained a firm foothold. This is, without doubt, an advance in the right direction, but nevertheless the system has its defects, and discretion is needed in carrying it out. The great fault with those in charge of these modern establishments is that they do not or will not understand that the sexual question is of any importance, and still cling to the belief that a girl between the ages of fourteen and twenty is able to undergo an equal amount of physical and mental exertion as a boy of the same age. That this is a mistaken view is plain on the face of it. In the schools for boys perhaps the attention given to exercise is excessive: on the other hand, in too many of the girls' schools it is not sufficient. What is required in the establishments for the education of girls is that more time should be allowed for health-giving, out-of-door exercise; if this were done, the number of neurotic women would be greatly lessened, and the services of the doctor could in most cases be dispensed with. In the words of Dr. Playfair: "It is not the work which in my judgment hurts, but the perseverance in work after nature has hung out its danger-signals; work in an unhealthy body; the attempt, in fact, to fight nature. Then, indeed, the careless, prejudiced, or unwise mistress or parent may well find that 'over-pressure,' the very existence of which so many deny, is a stern reality and may shatter the whole future of the girl."

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[1] *Medical Record.*

Dr. Harriet E. Garrison, in an able paper on "The Physical Development of Women," read at the meeting of the American Medical Association held at Philadelphia, and printed in the *Journal* of the association, deals with the same subject in an instructive way. After discussing the point as to whether there is much inherent difference between the physical capacity of the sexes, and concluding from the fact that in many foreign countries the women perform most of the hard manual labor, that the difference is but slight, she goes on to say: "If our girls were turned loose to amuse themselves spontaneously, to run up hill and roll down, to skip and jump without rhyme and reason, except as it is supplied by the exuberance of their own innocent natures, there would be less headache in adult life. . . . Fresh air, fresh water and sunshine should be the inalienable right of every child in this land of the free and home of the brave, but our women are starving for these very things. Not only are the girls from the sweat shops and factories, who are shut in for ten or twelve hours where no sunshine or fresh air can reach them, but the woman of social position must give at least ten hours daily to her duties, shut in as closely from fresh air and sunshine as her humble sisters."

These are true remarks, especially in regard to the condition of the poor. Exception may perhaps be taken to Dr. Garrison's view that there is but little inherent difference between the physical capacity of the sexes. The *British Medical Journal* says: "Some of us were of the opinion that by a little courage and habit, and in a higher state of bodily vigor, the menses might be disregarded in regular callings and exercise. We have rendered this opinion, and have convinced ourselves that girls and women are unwise in pursuing their exercises, whether of body or brain, during the first two days of the period." With the contention of Dr. Garrison that fresh air and exercise are essential to the well-being of every women are unwise in pursuing their exercises, whether of body or brain, time when this fact will be fully appreciated by those who are responsible for the training of the young female population.

TREATMENT OF TYPHOID.[1]

It is probably true that no single medical disease has been talked about in the societies and written about in the journals to a greater extent during the past eighteen months than has the subject of typhoid fever. Not to enter upon the quetsion of why this is so, it may perhaps be profitable to look over the field that has been so laboriously worked and see what conclusions have been reached, and to note such claims as have been put forward for new remedies or new methods, so that they may be compared with the older. The progressive practitioner of the day usually has for his motto, "Be not the first by whom the new is tried, nor yet the last the old to lay aside," and, acting upon this guiding principle, he is always ready to accept the new way, when it has been shown to be the best one.

Unfortunately, perhaps, in typhoid as in almost every other morbid process, there can be no single royal road to cure applicable in every case. While, however, each individual affected must be treated more or less according to the conditions presenting themselves, there are certain general principles of management which apply to all.

In a recent discussion by the Lenox Society almost all the members agreed that a generous dose of calomel at the onset of decided symptoms of typhoid was in order, and not a few believed that subsequent smaller doses might do much in the way of establishing antisepsis of the intestinal canal by their effect in calling forth normal secretions which are antagonistic to germ life rather than by any direct action of the remedy itself upon the germs. The abortive plans, and especially that of Woodbridge, have been much discussed. If the data, as given in recent reports, are to be accepted on their face, one need scarcely look further, since the mortality is less than two per cent. in a series of cases running into the thousands.

The figures presented have not, however, been universally regarded as above honest doubt, and many authorities still maintain that antiseptic plans *per se* are not to be relied upon. Modified forms of the Woodbridge method are, however, springing up here and there, with reports to demonstrate their value. This would seem to indicate that there is more worth in antiseptics than many are willing to admit, unless the plan of administration is of their own device.

Advocates of the bath treatment appear to be increasing in number, and while all do not agree as to the exact method of tubbing to secure the best effects, it is generally conceded that excellent results are to be obtained by judicious cold-water treatment, and the closer the Brand method has been followed the better the reports seem to be.

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[1] *Medical Record.*

Among recent devices for decreasing the disagreeable features of the bath are a tub on wheels, to be brought close to the bedside; a hammock for lifting the patient in and out, with a minimum of discomfort for the latter and of labor for the attendants; and a folding rubber tub with inflatable sides, which can be inserted like a sheet beneath the patient, filled, emptied, extracted, leaving him undisturbed in bed.

The serum treatment has as yet met with slight success, though an antitoxic would seem to be the ideal method. Some successful trials of antityphoid serum have been reported from England.

Hygienic and dietetic measures still have to be mainly depended upon, and Delafield's dictum that milk is the best food for typhoid patients is generally acquiesced in; but many practitioners have learned to watch for evidences that the too exclusive milk diet is causing injury, and they know that in a sudden rise of temperature, otherwise not to be accounted for, milk is to be wholly withdrawn and broths, soups, gruels, eggs, etc., substituted for a time. Aside from securing mental and bodily rest, keeping the temperature within bounds, supplying sufficient fluids, and giving proper foods, each subject of typhoid must be treated according to the symptoms he presents. For the majority of patients showing high fever it is probable that tub baths will be found efficacious, since there is no longer question that the mortality has been greatly reduced by this method of treatment.

INFECTIOUS NATURE OF RHEUMATISM.

In a clinical lecture on the subject of rheumatism as an infection (*Journal de Medecine de Paris*), Jaccoud pointed out that in very many cases of rheumatism some preceding local process has been observed serving as a point of invasion to the organism (whatever it may be) that is the cause of acute rheumatism. Among these, by far the most important is tonsillitis, and a striking fact is that the organisms found are exactly the same as those occurring in the tissues which are the seat of the location. For this reason the pharynx, tonsils, in fact, any tissue showing a lesion, may allow the organism to enter. A case has been reported in which a foot wound seemed to be the lesion at fault. Although nothing definite is known anent the origin of acute rheumatism, circumstances connected with the disease render its bacterial origin practically certain.

Jaccoud looks upon the infectious nature of rheumatism as beyond doubt when its mode of evolution, its diffusive character, and the fact that there is intra-uterine transmission fro mmother to the fœtus, are taken into consideration. One such is recorded by Jaccoud, in which a mother suffering from a severe attack of rheumatism gave birth to a child who in twelve hours developed pyrexia with pain and swelling of the joints, all of which gave way to sodium salicylate in a week.

PROGRESS OF MEDICINE

THE THERAPEUTICS OF GOLD, ARSENIC AND MERCURY.

There is abundant evidence of the therapeutic value of gold, arsenic and mercury in a wide variety of ailments, but their full measure of usefulness has not always been available because of the untoward effect which they are prone to produce, particularly on the digestive organs. These ill effects are, it would seem, largely due to the particular form in which the medicines are exhibited, and not necessarily to the basic substances themselves.

Where it is desired, for instance, to push the administration of arsenic, so as to produce the fullest degree of arsenization, the stomach will almost invariably give out before the desired results can be obtained by the use of Fowler's solution. This fact is specially noted by Dr. A. P. Buchman, who has long made a special study of denutrition and false metabolism remotely dependent upon gastric and intestinal indigestion. Here, of course, any tendency to derange digestion would wholly nullify any possible beneficial effect. Dr. Buchman states (*New England Med. Month.*), that desiring to secure arsenization he had tried Fowler's solution, but that he has "never secured from Fowler's solution the fully desired arsenic results which have invariably followed the administration of arsenauro, and yet as Dr. Stucky over a year ago pointed out in his scientific paper, the average dose of arsenauro contains very much less actual metallic arsenic than does Fowler's solution. We evidently have an entirely new agent in arsenauro, something more than the mere combining of arsenic and gold, for by evaporating arsenauro you have a resultant crystal which is not the crystal of arsenic, nor is it the crystal of gold, but a crystal such as I have never seen before. I would lay emphasis upon the point that I have observed no evidence of arsenical poisoning from arsenauro. It does not produce cumulative effects, but is easily and promptly assimilated."

This arsenauro referred to with such high commendation is a solution of a double bromide of gold and arsenic, prepared according to the formula of Barclay, of Pittsburg, and it has been used by a number of careful physicians in very much the same lines as those followed by Dr. Bachman, and with uniformly good results.

Dr. Ohmann-Dumesnil, of St. Louis, has reported a large number of cases of skin disease of various kinds, which he has treated successfully with arsenauro, and summarizes the results obtained (*N. Y. Med. Jour.*) as follows:

"These cases have been roughly outlined so as not to weary the reader. They are what might be called sample cases from a large number of similar ones which have terminated favorably under the influence of the gold preparations mentioned. One feature which has been particularly noticed in connection with mercauro is its marked aphrodisiac properties. While only male patients have mentioned this, no doubt the female ones experienced similar sensation or exhilaration. This latter has been alluded to by a number of patients of both sexes. There is no doubt in my mind that the bromide of gold is the most efficient salt of the metal, and it appears to exercise a two-fold effect therapeutically—viz., it increases the action of the arsenic and mercury with which it is combined, and at the same time it seems to prevent the manifestation of toxic symptoms. It is itself very efficient, if we are to believe competent authority, which states positively that bromide of gold is thirty times as efficient as the other bromides.

"So far as the preparations mentioned are concerned; they are efficient and rapid in action and the manifest effects of the gold are evident. An exact dosage by means of measuring the drops is attained and ease of administration is secured, no disturbance of the stomach resulting from their ingestion. The vertigo which is experienced disappears as soon as the dose is diminished. I have had no occasion to observe aurism up to the present. In fact, I have never seen none but the good effects of these gold preparations. One point, however, must always be borne in mind. The indications presented must be such as demand gold. Some of the older writers maintain that gold was the remedy for syphilis, whereas it is only in the later and deeper manifestations that its good effects are shown. Furthermore, gold and its preparations will not have good effects in all skin diseases, but will prove the most valuable adjuvant in such as have a distinct neurotic base as an ætiological or complicating factor.

"It is the hope of the writer that the few clinical notes jotted down above may serve as a stimulus to further inquiry into the therapeutical worth and more extended application of gold and its salts, , as it is a matter of interest and possibly of greatest importance, more especially in the treatment of many chronic affections of viscera and organs."

Dr. G. Frank Lydstong, Chicago, has also published a very favorable report on the results obtained from the use of arsenauro, and has presented the following conditions (*Med. World*), as among those in which he found arsenauro particularly valuable:

"The special value of gold in pathological conditions characterized by a tendency to neoplastic tissue formation—non-malignant—and sclerosis, has been so often dwelt upon that it hardly requires any expatiation at my hands. I will suggest, however, that the key-note of the situation had failed of appreciation. Gold is valuable in these conditions because of its effect upon the trophic and the vascular function of the sympathetic. It is, therefore, valuable in all conditions characterized by tropho-neurotic or angeio-neurotic disturbance.

"This is to be borne in mind in the therapy of gold. I believe that to the tropho-neurotic action of gold is due its beneficial effect in nerve and bone syphilis, tertiary syphilis, and various skin diseases. The combination of gold with bromine obviously enhances this effect; indeed, I doubt whether gold in any other form would answer as well.

"Among the special indications for the bromide of gold and arsenic, or bromide of gold arsenic and mercury, are such syphilitic conditions as osseous nodes, chronic mucous ulceration and hyperplasia, tubercular, ulcerative and squamous syphilides (the drug being especially beneficial in sequelar lesions), syphilitic pachymeningitis, cerebro-spinal gummata, syphilitic neuralgias of various forms and visceral syphilis. In mixed lesions of the skin, especially where syphilis co-exists with a tendency to eczema, or psoriasis, the preparation of arsenic and gold is a very happy combination. Chronic skin diseases, such as acne, psoriasis and eczema, have in the Barclay preparations a powerful antagonist. In some stubborn forms of acne, the arsenic and gold preparation act marvelously well.

It has not been my experience that the gold, arsenic and mercury formula can be relied on in the routine treatment of syphilis. In early syphilis its use in my hands has been disappointing. Too much must not be expected of this really valuable preparation.

"In sexual neurasthenia and hypochrondriasis, the arsenic and gold formula is of great value.

"A promising field for the arsenical gold preparation is in the treatment of dipsomania and post-alcoholic neurasthenia. I do not recommend it as a specific for inebriety, but my experience goes to show that it is the most valuable adjunct to moral and physical restraint that has thus far been given the profession.

"I have lately been experimenting with both of the gold preparations in chronic prostatic inflammation—I believe with promising results—but I am not as yet in a position to claim much for the drug in these cases.

"There are many indications for the gold preparations, which seem to me to be quite clear, but I have limited my remarks to certain conditions in which I have acquired, by abundant experience, settled convictions as to their value. The value of gold is with me no longer an experimental question—it is a thoroughly demonstrated fact. I have no desire to exploit any special preparation, but, up to date, the Barclay formulæ appear to be the only reliable preparations of gold upon the market."

HAEMORRHAGES IN NEURASTHENIA.

Ausset (*Rev. de Med.*, n. 9, 1897) draws attention to the fact that hæmorrhages may occur as part of the symptomatology of neurasthenia. Taking hæmatemesis as a type of this class of hæmorrhage, if one examines the blood it is seen to be more watery than ordinary blood, the hæmoglobin hardly reaches a fifteenth of the normal figure, and the red corpuscles are much reduced in number. If the blood is allowed to stand it separates into three layers: at the bottom a thick grayish layer, then a reddish very thin stratum, and finally a liquid layer redder than the middle one. Microscopic examination showed the bottom layer to consist chiefly of pavement epithelium cells, the middle of red corpuscles almost devoid of color, and the upper layer of dissolved hæmoglobin. There are generally well-marked vasomotor disturbances in other parts of the body. The hæmorrhage, as a rule, only occurs once, and the patients are able to go to work in a very short period. The author believes these hæmorrhages to be due to a vasomotor paralysis, causing rupture of the capillaries situated near the glandular epithelium. Recurrence may occur, but usually at a long interval. The prognosis is good.

OPERATIVE GYNAECOLOGY.

In reviewing some fifty consecutive cases of intraperitoneal operations, Dr. A. Brothers (*Med. Rec.*) draws the following conclusions:

My experience thus far teaches me that the field of operative gynæcology is a very broad one. Still, after having mastered the essentials of technique by proper training on the cadaver and in a number of living subjects, under the supervision of a master, one will find that most cases fall into distinct groups which, after some experience, will suggest themselves at the time of operation.

There are three principal sources of danger in operative work—anæsthesia, hæmorrhage and sepsis. It occasionally happens—sometimes through the inexperience of carelessness of the anæsthetizer, sometimes on account of individual peculiarities—that the patient becomes profoundly cyanotic or stops breathing. Although such conditions have caused me much anxiety at times, I have as yet lost no case from anæsthesia. Of course this danger does not depend on the nature of the operation. It may occur in connection with a simple examination under narcosis. It is a good practice to watch the color of the oozing blood and to inquire of the anæsthetizer at regular intervals regarding pulse and breathing.

With increasing experience one needs to fear hæmorrhage less and less. Occasionally a case will prove annoying, perhaps serious, from the fact that every cut or needle puncture will excite profuse bleeding. A good rule to bear in mind in such cases is that laid down by one of our most eminent New York gynæcologists, "Don't get rattled." An operator with a good knowledge of anatomy and his instruments, a clear head and a steady nerve has little to fear from hæmorrhage.

The greatest danger to fear is sepsis. When the general peritoneal cavity is invaded, all the operator's precautions will be of no avail if his instruments and dressings are not aseptic, if his ligature and suture material is not above suspicion, if his assistants at the wound and at the instrument tray, as well as his nurse in charge of the sponges, are not thoroughly schooled and drilled in every detail of asepsis. Even with trained assistants the carlessness of one individual may result in the introduction of sepsis. A drop of sweat into the wound, the touching by nurse or assistant in a thoughtless moment of something not rendered sterile, may cause the death of the patient in spite of the most skilfully performed operation.

To reduce this source of danger to the minimum it is desirable to work with as few assistants as possible. It is a good plan to watch one's assistants so that they are constantly on the *qui vive.* As far as possible I introduce only my own hand into the peritoneal cavity. In pus cases it is well to spend some time in the introduction of pads, pushing the intestines up toward the diaphragm. In such cases, even if pus escapes, it will do little mischief, provided the escaping matter is caught in the gauze. I have been so well satisfied with this plan of procedure that in my later cases I have entirely dispensed with intra-abdominal flushings. Drainage I still resort to, but only in doubtful cases. As a rule, if hæmorrhage is entirely controlled and any septic material has been thoroughly removed, it will be quite safe to close the wound without drainage.

THE OPERATIVE SURGERY OF GASTRIC ULCER.

Heydenreich (*Sem. Med.*, February 2, 1898) gives the indications for surgical interference in gastric ulcer:

(1.) In perforation it is absolutely necessary as early as possible before the perforation, and to wash out the abdomen. Since 1894 the mortality after operation has fallen to 52.94 per cent., and without operation the condition is almost necessarily fatal.

(2.) For stricture of the pylorus. In this condition it is hard to distinguish obstruction from swelling of the tissues round the ulcer, or from pyloric spasm from true fibrous stricture. For the latter there are three possible operations: (*a*) Resection of the pylorus; (*b*) gastro-enterostomy; (*c*) pyloroplasty. Of these the first is the most dangerous, and has no advantages over the others, unless the ulcer can be excised with the pylorus. Pyloroplasty is not applicable if the ulcer extends to the pylorus, or where the pylorus is adherent, and its walls have lost their softness. When there is a choice between the second and third methods, Mikulicz prefers pyloroplasty.

(3.) Operation may be required for adhesions or abscesses in connection with the ulcer. These are mostly very hard to diagnose, but it must be remembered that in some cases of persistent pain exploratory laparotomy is justified.

(4.) For hæmatemesis. Since sudden death is the exception, and many cases recover with medical treatment, the propriety of operation is still doubtful. Hartmann's 12 cases gave 8 deaths and 4 recoveries. The author believes the chief point to be the quantity of blood lost. For violent hæmorrhage laparotomy has almost always failed. Sometimes the infiltration of the surrounding tissues has rendered excision of the ulcer or ligaturing the bleeding vessel impossible. Often the bleeding comes from a branch of the splenic artery, whose territory is very difficult to reach, and sometimes the ulcer has been too small to be found. For slighter hæmorrhages which become dangerous through repetition operation may be successful; usually pyloroplasty or more often gastro-enterostomy have been performed in such cases with a view to procuring rest of the stomach, and consequently of the ulcer and its healing.

(5.) This last consideration has led some to propose gastro-enterostomy for cases of uncomplicated gastric ulcer. The general death rate for all cases of gastric ulcer is 25 to 30 per cent., for gastro-enterostomy only 16.2 per cent., and therefore the operation has less danger than the disease. Another advantage of not waiting for complications is that the patient is in better health. At any rate cases which do not improve with medical treatment in a reasonable time should be treated surgically.

THE RED CROSS OF EUROPE AND AMERICA.

In the April issue of *Our Dumb Animals* the following beautiful tribute to one well worthy of it is printed. Every medical man must know how true all this is and must often have wondered at the grand and earnest devotion in behalf of the suffering of the lady referred to, as well as those associated with her in her work:

Into the shell-shattered city of Strasburg on the morning after its capitulation to the Grand Duke of Baden, there walked unguarded, unattended save by a maid, a slight delicate woman in a dark, plain dress, with a scarlet cross wrought in her sleeve above the elbow. Through the battalions of conquering troops which guarded the city she went fearlessly, unchallenged and unmolested, and the sentinels on the ramparts grounded their muskets as she touched the scarlet symbol on her arm and hurried past them over the heaps of dead and dying, into the heart of the stricken city. She found famine, fire, terror, a shattered city surrendering through hunger, its hospitals filled with wounded women and children, its streets swarming with half-naked, half-starved, frenzied people, a city whose able-bodied men were all in the conscripted ranks of the French army or in the prisons of Germany.

Through the instrumentality of the stranger, in forty days the hungry were fed, the sick healed and the naked clothed. Boxes of supplies came by hundreds into the city, marked ever with the scarlet symbol she wore, money poured into her treasury faster than she could spend it, and scores of brave nurses and heroic assistants gathered about her. White hands that had never known labor bound the scarlet badge on their arms, and the proudest ladies of Germany, under the sign of the crimson cross, went down to the help and succor of the city which their troops had conquered. Indeed, so abundant were the offerings of clothing, that a message was sent to the Empress, "You are making paupers of Strasburg with your generosity; send me material rather than clothing, that I may hire them made up here, and thus create an industry for the people." The material was sent, and twice each week hundreds of women went to her door with baskets on their arms to receive their work, for which they were abundantly paid. Forty thousand neatly fashioned garments of assorted sizes were packed in boxes stamped with the scarlet cross.

The Commune had fallen in Paris. The crash of the Column Vendome still thrilled in the startled air. The flames of the Hotel de Ville lit the city with the lurid light. The streets were reeking with blood, and the air was heavy with the groans of the dying.

Suddenly there appeared the same vision of mercy that came to the need of Strasburg. Pale, dust-covered, travel-worn and well-nigh exhausted, for she had walked seven miles into the city (90,000 horses having been eaten by the people, none were left for transportation). The German troops outside the city detained her with no questions when they caught the gleam of the scarlet cross. Cordons of French soldiers guarding the streets lowered their bayonets as she touched the glowing symbol, and the sullen, frenzied mob made way for her to pass.

The mayor had been reinstated in his office but a few hours, the dust of months lay thick on books and papers, his assistants were hurrying to and fro and writing frantically. The mayor himself was anxious, weary, heart-sick. Suddenly a soft voice sounded in his ear, an earnest, resolute, tender woman's face was lifted to his own, he caught the gleam of the scarlet cross, and heard the low, clear words, "Mayor, I have come to help you. I have 40,000 garments in my boxes outside the city, and plenty of money." The mayor's house was instantly at her disposal, but she argued: "It is too grand for my work; give me some humble place where the poor will not be afraid to come to me."

"Madam, eight months ago I left my home, as I supposed, to be burned—to-day, through the grace of God, it stands intact. Is it too good for God's poor? Make it your headquarters—they will go to you anywhere."

The history of Strasburg repeats itself, and the hungry were fed, the naked clothed, the poor taught self-helpfulness, and then the woman of the red cross vanished.

When the Mississippi overflowed its banks in 1884, and the people were without homes, food, money, or seed for the next season's planting, suddenly out of the turbulent waters a steamer laden to her guards with every variety of provender, sustenance and comfort for man and beast, came to the rescue of the suffering people. Whence she came, how provisioned, by whom supplied, no one knew; only a woman stood at the helm with a cross of crimson on her sleeve, and at the mast a banner floated—a shield of white crossed with scarlet bars. When the floods abated and the needs were all supplied, the strange craft vanished and her colors were hauled down in an unknown port.

High up in the Balkan mountains the soldiers of Bulgaria were freezing and dying for want of supplies. Word came to the woman with the scarlet cross, was forwarded to her colleagues in various cities, and before night this telegram was sent from New Albany: "Call on us for $500 for the Balkan soldiers." The message was cablegramed to Geneva, Switzerland, the next morning: "The Red Cross of America sends $500 to the Balkan soldiers." Telegrams were sent from Geneva to Bulgaria, goods were purchased to that amount, and the next day after the woman of the red cross received the call of need, high up in the fastnesses of the Bulgarian mountains the soldiers were receiving the warm garments sent.

Who is this mysterious woman that controls the soldiers of opposing armies and commands the exchange of the world with the gleam of the scarlet cross?

Heroes of the rebellion knew her as the first woman nurse to bring comfort and succor to the wounded. Surgeons remember when her white-tented wagons drove upon the field the things most needed were at hand. The army of the Potomac knew her, and the heroes of Morris

Island have never forgotten the only woman who remained on the island, caring for the wounded while the shot and shell fell like hail. The Andersonville prisoners remember the woman who took them by the hand, and the widows and mothers of the Andersonville dead will ever remember her at whose request the bodies of the 30,000 men who died there were identified and buried in marked graves. The sufferers of the Ohio floods, Michigan fires, Charleston earthquake, Texas drought and recent Mount Vernon tornado can tell you who she is, and every sovereign in Europe knows well the name and works of Clara Barton, the president of the "American Red Cross."

Who would not rather be Clara Barton than king, queen or emperor?

ON THE ACTION OF SPERMIN IN DIABETES.

Dr. A. Telnichin reports in the Russian medical journal *Vratch* (Vol. XIX, No. 11, p. 333) his personal experience with spermin. In 1893 the doctor met with a severe accident in a railroad collision. Three weeks after the accident he began to show unmistakable evidences of severe diabetes: intense thirst, losing of flesh, great weakness and a very large amount of saccharin urine. The quantity of urine in twenty-four hours was from 3,000 to 4,000 c.c. (6 to 8 pints), and the percentage of sugar was from 2 to 2½ (i. e., from 60 to 100 gme., or from 2 to 3½ ounces). All the known remedies, such as lithium salts, Carlsbad salts, sodium salicylate, phenol, iodine, pancreatin, antipyrin, kuinine, guaiacol and Syzygium jambolanum, etc., were tried in succession, but with very little or no results.

The best results seemed to be given by the last two remedies (guaiacol and Syzygium jambolanum), but they were temporary in character. The doctor's attending physician, Dr. Litkin, then recommended the subcutaneous employment of spermatic fluid. In three weeks there was a very evident improvement. There was an increase in strength, the mental faculties became brighter, the difficulty in defecation and urination became less, and at the end of three months the daily quantity of urine fell to five pints and the percentage of sugar to 1½ per cent. The spermatic fluid employed was prepared personally by the author and by the attending physician, Dr. Litkin, from the testicles of bulls and dogs. After many experiments they succeeded in preparing a perfectly clear, transparent fluid, which in hermetically sealed bottles keeps for three months, without the addition of glycerin or phenol. It is three years now since the author began the employment of spermatic fluid, and he says he "lives" on it; he uses it for two months at a time, making daily injections; he then stops it for two or three months, but at the end of the third month the severe symptoms begin to return, he begins to feel weak, thirsty, etc., so that he must recur to the spermin injections.

The author says that he is certain that the beneficial effects of the spermatic fluid are real and not due to auto-suggestion. Concerning the diet, the author convinced himself by repeated examinations of his urine that complete eschewing of starchy food had little effect on the quantity of sugar. Preserves, candy and sugar, on the contrary, had a distinctly unfavorable effect; in all cases where sweetening is required, the author uses saccharin, from which he has observed no injurious after-effects whatsoever. Otherwise he does not restrict himself in his diet. In conclusion, the author reports briefly four cases (one of neurasthenia, two of locomotor ataxia and one of senile impotence) in which the injections were employed with favorable results (at one time the author tried Poehl's spermine, but the action seemed feebler, and besides it was too expensive for him).

THE ADVANTAGES OF A BAD CONSTITUTION.

The advantages of a robust frame and a sterling temperament are many and obvious, but there is a reverse to this medal as to others, says the *Medical Press*. The man with a bad constitution—that is to say, with an organism which "rounds on him" with implacable ferocity whenever he relaxes, be it never so slightly, his observance of the laws of hygiene, dietetic or social—may be likened to the impecunious citizen who rejoices in little or no credit and is constrained to pass his purse in review before proceeding to make a purchase. He cannot run greatly into debt because his bills are presented day by day. So it is with him physiologically. He looks with envious eyes at his sturdier fellow who violates every rule of health and propriety night after night, yet rises with (or after) the lark, gay and, apparently, unaffected by his previous indiscretions, while he, poor man, is punished severely by a day of headache and dyspepsia, following not improbably, a night of unrest. With him the punishment follows too swiftly on the offense for any doubt to subsist in his mind as to the relationship of cause and effect. The consequence is that he, more or less reluctantly, avoids the excesses which he enjoys for such a brief period and regrets for so long. The carefulness of habit thus begotten ultimately characterizes his life as a whole. He, at any rate, will not smoke one cigar too many or too strong. He is not the man to cycle himself into a state of exhaustion which the morrow only accentuates. If he marry it is with the object of husbanding his resources, and to secure that regularity of function which physiology inculcates and experience approves. The stronger, burlier *viveur*, goes, so to speak, the whole hog. He rejoices in apparently unlimited credit, and he stops not to count the cost. Slowly but surely the bills accumulate, and by and by he finds himself physiologically bankrupt. It is not until the bills are presented that he realizes how extravagant he has been, and this at a stage too late for the lesson to be of any benefit. "The creaking gate hangs long."

SALOPHEN.

Baqué has recently published (*Journ. de Med.*, September 10, 1897) the results of a long series of observations on the use of salophen. In its chemical composition salophen is allied to salol, containing 51 per cent. of salicylic acid and 49 per cent. of acetylparamidophenol, and experimentation shows that it is three times less toxic than salol. The most likely explanation of this fact is that salophen is slowly decomposed in the intestine, so that salicylic acid cannot accumulate; thus the substance is likely to prove preferable to many other drugs, especially in the treatment of long-standing affections. When taken by the mouth it passes through the stomach unaltered, as it undergoes no change in an acid medium, and it is only in the intestine, when exposed to intestinal and pancreatic secretion, that it breaks up. The salicylic acid uniting with glycol is largely eliminated in the urine, either as nascent salicylic acid or as salicylate of sodium. The acid phenol unites to the radical HSO_3, forming a sulphate with that body. A certain amount of salophen is eliminated unchanged. There is evidence, therefore, of the slow decomposition undergone by this substance, so that the organism is continually under its influence. There seem to be very few instances of intolerance, and bad effects are also very rare. Salophen is free from smell or taste, and the most convenient method of administration is in cachet, and it has been suggested to give it in the form of tablets made up with starch. The author states that 6 g. may be given per diem for adults, but, as a rule, 4 seem to suffice; and Marie is quoted as stating that the administration of small quantities at a time and frequently gives the best results, more particularly in cases of acute rheumatism. In this latter disease it has been administered with very marked effect, and, though seemingly inferior to salicylate of soda, seems to be free from the drawbacks of that drug. In chronic rheumatism its action is less marked than other drugs. It seems to be of considerable use in migraine, sciatica and neuralgic pains, in much the same way as antipyrin or phenacetin. Lastly, the author has found it beneficial in certain diseases of the skin, notably those accompanied by much itching.

DIABETIC ALBUMINURIA AND ITS TREATMENT.

Goudart (*Journ. de Med.*, August 25, 1897) has recently devoted much attention to this subject: first, the frequency of albuminuria in diabetes is variable and may occur in two forms, functional and that due to grave nephritic disease. In the first form it may be extremely slight, or else may constitute a very marked feature in the case. When slight, proper dieting and small doses of antipyrin combined with a little bicarbonate of soda in the form of a powder may be given every one and a half hour before each meal. This treatment should not be continued more than three or four days, beyond which time the antipyrin will become injurious. It is well to prescribe some quinine wine and vichy water at meals. After this treatment the sugar decreases considerably, in other cases it remains unaffected. In the first instance anti-diabetic treatment may be set aside and attention devoted to the albuminuria; in the second instance it is advisable to order small doses of arseniate of soda combined with codeia and carbonate of lithia. Most usually the glycosuria diminishes under this treatment, and the albuminuria is then treated in the same manner as above. This line of treatment is usually followed by extremely satisfactory results. After a fortnight or so it is recommended to give phosphates with nux vomica, or later, hypophosphates of lime potash or soda with quinine, etc. Should the quantity of albumen eliminated in twenty-four hours reach 2 to 3 g., the case is practically one of Bright's disease, and the patient is put on milk diet. The author now recommends lactate of strontium in small doses.

EUCASIN AS A CHILDREN'S FOOD.

Baginsky and Sommerfeld (*Therap. Monatshefte*, October, 1897) record a careful study of the effects of substituting eucasin for meat in the dietary of two children with normal digestive powers. The diet was in each case identical; the child was first fed for four days on a mixed diet, of which every constituent was weighed and the elementary principles estimated, and then, for four more, on a precisely similar allowance, the meat being replaced by about two-sevenths of its weight of eucasin; it was finally kept for four more days on the original regimen. Careful statistics are given of the body weight, the quantity and analysis of the urine and fæces, the amount of nitrogen used, wasted and excreted, and the input and output of fat. It was found that the administration of eucasin led to no digestive disturbance, and that it increased the excretion of nitrogen while markedly diminishing that of uric acid. It could, therefore, be asserted that eucasin was well utilized by the child's organism, at least as well as other proteids such as meat and egg albumen, so that unless hitherto unforeseen objections should arise it could well replace those foods. The results are important and significant, particularly as no attempt had hitherto been made to investigate the dietetic value of eucasin for children.

CONSUMPTION AN INDOOR DISEASE.

S. W. Abbott (*Boston Med and Surg. Jour.*, Jan. 6, 1898) suggests that the conditions which may be considered as mainly accounting for the fact that consumption bears the characteristics of an indoor infection are:

1. Within the Body.—(*a*) A slow and indefinite period of incubation; (*b*) in the majority of cases it appears as a disease of the lungs; (*c*) selection of the youthful or early adult period of life (15 to 30 years); (*d*) it exists as a disease of certain other mammals as well as of man; (*e*) mode of entrance into the body, by the lungs, the alimentary canal, and by inoculation through the skin.

2. Without the Body.—The infection leaves the body mainly in sputum coughed up from the lungs, but may occur in secretions or excretions from other diseased organs. The infectious sputum is mainly that of the lungs, and not that which is simply discharged from the mouth as saliva; nor does it actually exist in vomitus. The tuberculous sputum specially dangerous is dry, the sputum of inclosed air-spaces constituting a far greater danger than that which remains out of doors. Given a definite number of healthy persons and let them be divided equally as to an indoor and an outdoor life, and let an equal quantity of infectious material be

distributed equally among the two groups, and it may be laid down almost as an axiom, that the indoor group will become infected in far greater numbers than the outdoor group. This is due to the density of aggregation and the limitation of the air-supply. The preservation of the vitality of infectious material is also secured by the protection afforded by enclosed areas.

In proof of the proposition which forms the title of the paper, the author offers proof by presentation of tables: 1. As to the evidence presented by observations upon the mortality in different occupations. 2. The proofs afforded by the records of mortality by sex and age-periods.

AMYLOLYTIC FERMENTS.

In an article in the *Lancet* on this important subject, by Wyatt Wingrave, M.R.C.S., Eng., assistant surgeon to the Central London Throat and Ear Hospital, we are informed of a personal necessity that arose in the writer's experience for a reliable starch digestant. A crucial comparative examination was therefore made of many malt extracts and of Taka-Diastase, the tests being conducted both chemically and clinically.

He summarizes his results thus briefly: 1. Taka-Diastase is the most powerful of the starch or diastatic ferments, and the most reliable, since it is more rapid in its action—i. e., "it will convert a larger amount (of starch) in a given time than will any other amylolytic ferment." 2. Taka-Diastase seems to be less retarded in its digestive action by the presence of the organic acids (butyric, lactic, acetic), and also by tea, coffee and alcohol, than are saliva and the malt extracts. This is an important point in pyrosis. 3. All mineral acids, hydrochloric, etc., quickly stop and permanently destroy all diastatic action if allowed sufficient time and if present in sufficient quantities. 4. Taka-Diastase and malt diastase have, like ptyalin, no action upon cellulose (uncooked starch). All starch food should therefore be cooked to permit of the starch ferment assisting Nature in this function.

THE MERCURIAL TREATMENT OF SYPHILIS.

Schwimmer (*Wien. Med. Presse*, 1897, No. 44), while agreeing that removal of the primary sore can at best palliate and never cure the disease, recommends that the use of mercury should be begun before the onset of secondary symptoms. He states that of 15 cases of severe early syphilis seen by him during the last three years not one had been mercurially treated. He deprecates any reliance being placed on the severity of the primary symptoms as a guide to the subsequent course of the disease, and holds that all cases should undergo the same medicinal treatment. He points out that the discovery of the organisms of the soft sore and of gonorrhœa has led to no improvement in the therapeutics of those disorders, and considers that the possibility of a bacterial cause for syphilis should not interfere with its present empirical treatment.

With regard to the duration of treatment, with which the question of permissibility of marriage is bound up. Schwimmer quotes two cases in which, after prolonged treatment and freedom from symptoms, patients were allowed to marry; no infection of the wives took place, and each had two healthy children. Nevertheless each developed eight years after infection further syphilitic mischief, in one case affecting the testicle, in the other the periosteum. He concludes that the most prolonged treatment (three years Fournier, five years Neisser) cannot absolutely protect against relapses. As such lengthy treatment is very depressing both physically and morally, he considers two years enough, but does not recommend marriage till the end of the third or fourth year.

CHLOROFORM AS AN ANTHELMINTIC.

Carratu (*Giorn. Med. del Regio Escrcito*, An. 45) draws attention to the value of the internal administration of chloroform as an anthelmintic in tapeworm. He records seven cases where this treatment was eminently satisfactory, although the common anthelmintics had failed. The patient is put on mild diet for two days, but not fasting, and it is then given 3 to 4 g. of pure chloroform in syrup, in four divided doses every two hours, after which a dose of castor oil is given. No unpleasant effects followed and no symptoms of poisoning. The treatment was described by an American writer in 1888.

THE SERUM TREATMENT OF DIPHTHERIA.

Böttieher, of the Giessen Clinic (*Deut. Med. Woch.*, January 13 and 20, 1898), concludes a paper on this subject. As regards dose, 1,500 units were injected at once on admission. It is important, especially in country practice, that a sufficiently large dose should be given at the outset. In the clinic the injection was given into the outer side of the thigh. All other local treatment was omitted except the inhalation from weak salicylic acid solutions. Careful symptomatic treatment was always carried out, especially with the object of maintaining the patient's strength.

Among 200 cases injected during the last 17 months there was a mortality of only 8 per cent. The previous mortality was calculated at 44 per cent., but the total difference cannot of course be without further consideration, placed exclusively to the credit of the serum treatment. In the cases where tracheotomy was necessary, the mortality has also fallen very considerably. In the diphtheria of infants the good results were very obvious, so that in 65 infants under 2 years only 11, or 16 per cent., died. Again, tracheotomy has been considerably less often required, the diminution being to the extent of 33 per cent. The earlier the treatment is bgun the more favorable the results. Thus, of 185 cases treated within the first four days only 8 died, or 4.3 per cent. If Bose's previous statistics from the same clinic be included, the death rate with this early treatment was only 3.6 per cent., and among the tracheotomized 8.8 per cent. The mortality steadily increased when the treatment was begun on the fifth day and later.

In children with previous pulmonary disease like bronchitis the prognosis is especially unfavorable; three such cases were admitted, and died of the respiratory affection some time after they had recovered from the diphtheria. The author has included three cases in his statistics which were almost moribund on admission. If these were left out the total mortality would stand at 6.5 per cent., and that among the tracheotomized at 12.5 per cent. The effect of the serum treatment on the general condition of the patient and on the local lesion was obvious. Even severe laryngeal symptoms yielded under sufficient doses of the serum.

The necessity of doing tracheotomy or intubation on the second half of the first day of the serum treatment, or even on the second day or later, never arose. No ill-effects were observed. In only 5 children was any rash seen, and this soon disappeared. No painful joint affection, high fever, or unfavorable action on the general condition was noted. Among his other conclusions the author also mentions that the serum treatment protects against a diphtheritic infection of the tracheotomy wound.

INFLAMMATION OF THE COLON.

Delafield contributes an important article on this subject (*Amer. Journ. of the Med. Sciences,* October, 1897), in which he describes five forms of colitis: (1.) Acute catarrhal, in which there is production of increased quantity of mucus and serum, but no other alteration. The course is short and the prognosis good; but in children is more severe, and may even be fatal. (2.) Acute purulent colitis in which there is a purulent inflammation of the connective tissue coats, with secondary changes in the glandular structures. The patient shows signs of septic poisoning, and the prognosis is usually bad. (3.) Acute and productive necrotic colitis. This is a severe form, in which the inflammation principally affects the glandular layer. There is a considerable amount of necrosis, and the growth of new tissue. The symptoms are also septic, and some cases last three or four weeks, while in unfavorable instances the duration may extend over three months, and prove fatal. (4.) Croupous colitis, in which there are as a rule patches of false membrane, though in some instances there is necrosis of the whole thickness of the colon wall. (5.) Amœbic colitis, in which the inflammation is caused by the infection of the connective tissue layer of the colon by the amœba coli. The results to the colon are very variable, and abscess of the liver is a common association. The author points out that in treating these cases it is of great practical importance to discover whether the inflammation is high up or low down in the colon, and also whether there is ulceration or not. If the inflammation is low down the best treatment is irrigation, whereas if high up it can be treated by drugs; while in other instances the two can be combined should the inflammation be general. The method of irrigating consists in throwing in about two quarts of fluid for adults, and in the instances where the colitis is acute, and without necrosis, an infusion of flaxseed is recommeded by the writer; but should there be accompanying necrosis a solution of corrosive sublimate (1 in 10,000), chloride of zinc or formalin. In cases where the inflammation is in the upper portion of the colon bismuth and opium give very good results, and in necrotic cases large doses of ipecacuanha, small doses of castor oil, nitrate of silver, salol and naphthalin are the most useful.

ACUTE NEPHRITIS IN CHILDREN.

Dupeu has collected (*Journ. de Med.*, July 10, 1897) a large number of cases of acute nephritis in children. He finds that the affection is in reality more common than is supposed, but fortunately the disease is much more hopeful in its prognosis than in adults. The author looks upon measles as a more frequent cause than is supposed by some authors, for it is definitely stated by some that it is extremely rare in this condition. Irritation and absorption from the skin would seem to be a cause of acute nephritis; thus blistering, the application of turpentine, carbolic acid, etc., may produce nephritis, and it has been known to follow burns, severe electrization, too hot baths, and inflammatory conditions as eczema, erysipelas, impetigo. Chicken-pox has also been observed to cause nephritis, as first pointed out by Henoch. Others consider it exceptional, but the author quotes Descroizille as stating that the most frequent complication of varicella is nephritis. These cases all seem to terminate favorably. Post-vaccinial nephritis is also described, and acute inflammation of the kidney may even follow tonsillitis, and a case is quoted in which a recurrent tonsollitis was always accompanied by acute nephritis. Lastly, the author states that nephritis may be the result of ordinary gastro-intestinal intoxication, more particularly when there is dilatation of the stomach. This has been observed in children as young as 11 to 16 months fed by the bottle, and in whom vomiting and diarrhœa were prominent symptoms. In these cases there is very marked abnormal fermentation taking place with the production of more or less toxic products which when absorbed are competent to produce nephritis. The duration of these cases varies from two to four weeks, and may be accompanied by all the usual signs of Bright's disease.

THE MEDICAL WAR ORGANIZATION IN CUBA.

Dr. Angel de Larro Cerezo, chief Spanish surgeon in Cuba, says: "That of all the organizations necessary for the welfare of an army, the smallest and most complex is the sanitary," and he goes on to add that the difficulties that are inherent to the discharge of the medical duties are greatly increased when, as in Cuba, the troops are scattered over a large territory which is unprovided with roads, and in which malaria and yellow fever are endemic.

Under the circumstances, we are not surprised to learn that of the 200,000 troops landed in Cuba during the year 50 per cent. were invalided in the first two months of their arrival by endemic diseases and exhaustive marches.

Early in 1895 hospitals were built in every province of the island, twenty-five new sites being named. The building of infirmaries and hospitals was continued during 1896-97, until in the latter year 45,685 beds were ready for the reception of patients.

Of the hospitals of 1,000 beds and over there are the Royal, 5,000; Alphonsus XIII, 3,000; Manzanilla, 3,000; Beneficiencia, 2,100; Santiago, 2,000; Sancti Spiritus, 2,000; Ciego, 1,700; Cienfuegos, 1,450; Remedios, 1,400; Holguin, 1,300; Mudera, 1,100, and eight others with 1,000 beds each.

In 1895, from March to December, 49,485 patients were admitted; in 1896, from January to December, 232,714 were admitted; and in 1897 the admissions from January to June rose to the dreadful figures of 201,-247. Of those admitted to hospital 3,200 died in 1895; 10,610 in 1896, and 3,691 in the first six months of 1897. In the thirty-two months included in the statistics 17,501 deaths took place. Of the patients admitted to hospital during 1895, there were 7,034 suffering from yellow fever, the admissions from which reached 23,580 in 1896 and 4,636 in the first six months of 1897; making a total of 35,250 cases of yellow fever, of which 11,347 died—2,777 in 1895; 7,309 in 1896, and 1,261 in the first six months of 1897. And it is to be remembered that this terrible death-rate takes no count of the deaths from this fever which occurred in the civil hospitals, the private residences and the villages throughout the island.

Wounded treated in hospital in 1895 numbered 11,902; in 1896 there were 7,270, and in 1897 fell to 2,645; of these 1,989 died in 1895; 363 in 1896, and 160 in 1897. Of malaria, dysentery, typhoid fever and tuberculosis the exact figures prior to 1896 cannot be given, but for the year extending from June 30, 1896, to June 30, 1897, the following statistics can be depended on: During the time mentioned 79,552 cases of malaria occurred of such severity as to necessitate the patients being sent to hospital. Of these 515 died. In the same year 7,393 cases of dysentery were admitted to hospital and of these 811 died. Typhoid fever cases in hospital during the same period numbered 2,903, of which 576 died. 2,281 cases of tuberculosis were admitted during the year, of which 299 died.

The surgical arsenal appears to be well supplied. Among other items we find it contains 600 Pravaz syringes, 500 lancets, 850 Ferguson's forceps, 4,500 sounds, 800 syringes, 500 irrigators, 42 chests of surgical instruments. Bandages, splints and so forth are counted by the tens of thousands.

Of drugs the supply is, to say the least, liberal. Of the salts of quinine there are 11,887 kilogrammes, and 950 kilogrammes of the extract of cinchona. The salts of soda, magnesia, potassium and lime are stocked by the ton. More than 400 kilogrammes of the extract of opium and 51 kilogrammes of the salts of morphia are in stock. Antiseptics include 28,900 kilogrammes of phenol, 4,450 of boric acid, 110 of thymol, 1,400 of corrosive sublimate, 560 of calomel, and correspondingly large quantities of the less known antiseptic agents. Anæsthetics are liberally provided, 1,030 kilogrammes of chloroform and 910 of ether being included in the stock. For first aid there is provided 66,070 kilometers of absorbent phenol wool, and 545,100 meters of sterilized gauze and 105,700 packages of mustard leaves.

THERAPEUTIC HINTS.

On the Employment of Quicklime as a Source of Heat in Therapeutics.—Dr. K. Majewski, an Austrian army surgeon, suggests the idea of giving both the sick and the wounded the benefit of the heat developed when quicklime is slaked with water. This phenomenon, as is well known, results in the disengagement of as much as 100° C. of heat, and over. The vessel employed by Dr. Majewski is made of tin, flat and rounded; it can be closed hermetically. This is half filled with broken quicklime of good quality, and water is slowly poured on to it until the total amount reaches 60 per cent. of the weight of the lime. When the process of hydration is finished, the emission of steam ceases, and the mass in the vessel is found to have doubled in volume and to have become transformed into a homogeneous white powder. The apparatus is then closed; four hours later, it is still found to possess a higher temperature than the body. This circumstance may obviously be turned to practical use, more especially in times of war or epidemics. The lime which has already been utilized as a source of heat, may still serve as a disinfectant.

Rheumatic Affections of the Throat.—Since the recognition of the fact that there is a decided rheumatic element in some acute affections of the throat, notably in tonsillitis, the possibility has been afforded of cutting short many attacks of acute sore throat, or, at least, of greatly diminishing their severity. The administration of an efficient antirheumatic in these cases sometimes exerts a remarkably beneficial effect in reducing the inflammation, even without the use of local applications. An excellent remedy for this purpose is salophen, which is to be given in ten grain doses every two or three hours, until the condition of the throat is much improved, when it may be continued at longer intervals. If the patient is constipated, it is well to precede its administration by a saline purgative. Salophen has the great advantage of not increasing the gastric derangement so often present in cases of tonsillitis; it is also pleasant to take, and is always well tolerated. The nervous disturbances commonly caused by the salicylates, such as tinnitus and headache, have never been observed during the employment of salophen. Its effect in rheumatic affections of the throat is to alleviate fever, diminish the swelling and redness of the inflamed mucous membrane, and to prevent suppuration. The patient experiences relief after a few doses, and, if the remedy is given early enough, the attack may frequently be aborted—a property that renders it particularly useful in cases of habitual sore throats occurring during the winter months.

The Therapeutic Action of Hydrastinin.—Rousse contributes a long and important article (*Arch. Internat. de Pharmacodynamie*, iv, 3 and 4) on the internal effects of this base, which is an oxidation product of hydrastin, the active principle of hydrastis canadensis; it has the empirical formula $C_{11}H_{13}NO_3$, and is to be regarded as a derivative of pyrocatechin. The author's first observations were clinical, and he was able to confirm the well-known property of the drug (of which he employed the hydrochlorate) in checking uterine hæmorrhage, besides showing it to have an ameliorative influence upon the night sweats of phthisis. He next investigated the action of the drug upon frogs and mammals, and was enabled to prove that it exerts a vaso-constrictor action on the generative organs and the intestine, which persists even when the bulbar vasomotor center is paralyzed by chloral, and is hence peripheral in nature. A similar action probably results in the renal blood vessels as well. As is only to be expected, some dilatation of the cutaneous blood vessels accompanies this effect. Rousse furthermore finds experimentally that hydrastinin induces uterine contractions; this is not noticeable clinically, but he considers it probable that in women the uterine vaso-constriction is accompanied by a contraction of the smooth muscle of the organ, which is too gentle to occasion pain or abortion. During labor it undoubtedly strengthens feeble contractions and revives an inert uterus. The author purposes in a subsequent paper to state the results obtained with cotarnin, the action of which he has shown to be similar to that of hydrastinin.

A New Method for Producing Local Anæsthesia with Cocaine.—Dr. Otto Manz (*Centralbl. f. Chirg.*, 1898, VII, 177-181) describes a new method for producing local anæsthesia, which consists in injecting cocaine so as to paralyze the various peripheral nerve-trunks, thus causing anæsthesia over the whole of their respective distributions. With fingers or toes this is easy to accomplish, but in dealing with the whole hand or foot some time and patience are required. The method is as follows: An elastic ligature is passed around the member to be anæsthetized, then with a hypodermic needle of a rather extra length injections are made on the peripheral side of the ligature and in the direction of the sensory nerves supplying the part to be anæsthetized. The strength of the solution used was the 1 per cent. solution recommended by Braun, and from 0.05 to 0.06 gme. have been injected without the production of any toxic symptoms. From twenty to thirty minutes are required before complete anæsthesia is developed, but it requires only from two to three minutes after untying the ligature for the sensibility to reappear.

Inhalations of Vinegar to Control Nausea and Vomiting After Anæsthesia.—Dr. J. Torrance Rugh states (*Phil. Polyclin.*, VII, p. 110) that he has very frequently made use of inhalations of vinegar after anæsthesia, both in private and in hospital work, and was highly gratified with the results. The method of administration was to saturate a towel or cloth with fresh, strong vinegar (preferably that made from cider), and hold it a few inches above the patient's face, or hang it from the bedstead, so that it will be near his head. It should be used directly after the anæsthetic has been discontinued, and kept up continuously for hours.

In one case, in which ether had been given, nausea began soon, but ceased in about one and a half minutes after using the vinegar. This was then removed, and the nausea returned, but again disappeared after the vinegar was given. The action was so marked that the process was repeated five or six times so as to verify the conclusions, and each time the result was the same as at first noted, the patient quickly becoming quiet as though not going under complete anæsthesia.

Another patient was given chloroform for the removal of pharyngeal growths and swallowed considerable blood. Vomiting of the clotted blood occurred, but ceased immediately after, and did not return.

These results have been duplicated in about twenty-five other cases, in which the action was almost uniformly beneficial. The relief from thirst to the patient is most marked, and the refreshing effect is both grateful and welcome to the sufferer. Its simplicity and efficiency commend its use to all having to do with such cases. It is also free from any toxic effects, and can occasion no harmful conditions. F.

A Hint on the Treatment of Renal Calculi.—There is a certain class of cases of renal calculi in which much benefit is derived from the internal administration of antilithic remedies. These are cases where the calculus has not reached any considerable size and is composed for the most part of uric acid. The demand for a remedy that will disintegrate concretions of uric acid in the kidney and facilitate their elimination in the urine, has, however, been only imperfectly realized by the alkalies which have been chiefly employed for this purpose. While alkalies, especially lithium salts, undoubtedly exert a solvent action upon uric acid, this is not sufficiently marked to render it likely that they will dissolve stone in the kidney. A much more promising remedy seems to be lycetol, which has a specific solvent action upon uric acid, as shown in the decided increase in the quantity of this substance excreted in the urine after its administration. Lycetol is also well adapted for prolonged use in renal lithiasis, since it is extremely pleasant to take and does not disturb the stomach. Dr. James H. Taylor of Indianapolis, writes that in cases of renal calculi he has employed this preparation with very gratifying results, and others are equally positive in their statements regarding its value in all forms of the uric acid diathesis.

Shall We Return to Antisepsis?—Mikulicz takes the position (*Deut. Med. Wochenschr.*, June 24, 1897) that as it is practically impossible to secure perfect asepsis of the hands, it would be better if surgeons would return to the use of antiseptics which have been so generally discarded in these latter days. In hospital work he advocates the use of thin white cotton gloves, known to the trade as "footmen's thin gloves," which should be sterilized, several pairs being used during the course of an extensive operation. The hands should, of course be rendered as free from germs as possible. Moist towels should be worn over the nose and mouth, as it has been found that even in quiet speech, particles of saliva are ejected from the mouth. Thus two important sources of infection, the hands and the breath, are eliminated as far as possible. From the point of view of the bacteriologist many spectators are objectionable at operations.

BOOK REVIEWS.

A Compendium of Insanity. By John B. Chapin, M.D., LL.D., Physician-in-Chief, Pennsylvania Hospital for the Insane, etc., etc. Illustrated. Philadelphia: W. B. Saunders. 1898.

The author seems to have undertaken a task which is well nigh impossible, viz., to prepare in the form of a most condensed compend a book which will answer for a text-book for the medical student and a reference book for lawyers, laymen and physicians. Within the limitations of space set the work has been satisfactorily done. The book contains a clear, concise statement of the clinical aspects of the various abnormal mental conditions, together with directions as to the most approved methods of managing and treating the insane, and in this direction may prove of service. It is not sufficiently comprehensive, however, to take the place of the larger works which embrace all aspects of this complex and difficult subject.

Atlas of Internal Medicine and Clinical Diagnosis. By Dr. Chr. Jakob, of Erlangen. Edited by Augustus A. Eshner, M.D., Professor of Clinical Medicine in the Philadelphia Polyclinic; Attending Physician to the Philadelphia Hospital. 68 colored plates, and 64 illustrations in the text. Philadelphia: W. B. Saunders. 1898. pp. 259. Cloth, $3.00 net.

This volume is the first of a series which in German has long occupied a prominent position in the working library of German physicians. The series is known in German as the "Lehmann medicinische Handatlanten." Each volume contains from 50 to 100 plates, besides numerous other illustrations in the text. These colored plates have been executed by the most skilful German lithographers, in some cases twenty or more impressions being required to obtain the desired result. There is a full and appropriate description of each plate (printed, for convenience, opposite the plate), together with a condensed outline of the subject to which the book is devoted.

The great advantage of natural pictorial representation is indisputable. For lasting and practical knowledge, one accurate illustration is better than several pages of dry description. While appreciating the value of such colored plates, the profession has heretofore been practically debarred from purchasing similar works because of their extremely high price, made necessary by the limited sale and the enormous expense of production. The Lehmann atlases, however, are published at a very low price, and the English edition will also be published at a very low price, one which will place them within the reach of every practitioner and student.

The same careful and competent editorial supervision will be secured in the English edition as in the originals. The translations will be directed and edited by the leading American specialists in the different subjects.

These atlases offer a cheap and satisfactory substitute for that clinical observation available only to the residents of large medical centers; and with such persons the requisite variety of cases is seen only after long years of routine hospital service.

The first of the series is a most valuable volume, and will undoubtedly be widely appreciated by the profession in America.

Surgical Complications and Sequels of Typhoid Fever. By William W. Keen, M.D., LL.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, etc., etc. Based upon Tables of 1,700 Cases Compiled by the Author and by Thompson S. Westcott, M.D. With a Chapter on the Ocular Complications of Typhoid Fever, by George E. de Schweinitz, A.M., M.D., Professor of Ophthalmology, Jefferson Medical College, etc., etc. And as an Appendix, the Toner Lecture, No. V. Philadelphia: W. B. Saunders. 1898. pp. 386. Cloth, $3.00 net.

This valuable monograph grew out of two lectures delivered by the author many years since. The first of these was the Fifth Toner lecture published by the Smithsonian Institution on February 17, 1876, which is reproduced as an appendix, and the title of which is used as a title for the completed monograph. Twenty years later Prof. Keen was invited to deliver the Shattuck lecture before the Massachusetts Medical Society, and chose for his subject a review of the progress made in this special field of medical science during the twenty years which had elapsed since the publication of the Fifth Toner lecture.

The result is a monograph which is of great value not only as a record, but as an analytical study of the progress made. The paper added by Prof. de Schweinitz adds materially to the value of the work from a clinical point of view.

ANNOUNCEMENT OF NEW BOOKS.

Messrs. Lea Brothers & Co. announce for early publication the following books by eminent authorities. Complete catalogues of the publications of this firm may be had by addressing either their Philadelphia or New York house:

A Manual of Otology. By Gorham Bacon, A.M., M.D., Professor of Otology in University Medical College, New York. With an Introductory Chapter by Clarence J. Blake, M.D., Professor of Otology in the Harvard Medical School, Boston, Mass. In one handsome 12mo. volume, with numerous illustrations.

Diseases of the Nose, Throat, Naso-Pharynx, and Trachea: A Manual for Students and Practitioners. By Cornelius G. Coakley, M.D., Professor of Laryngology in University Medical College, New York. In one volume, 12mo., of about 400 pages, with numerous illustrations, many of which are in colors.

FAVORITE PRESCRIPTIONS.

FOR ASTHMA.

S. Solis Cohen uses the following:

Morphin. sulph	gr. $\frac{1}{8}$–$\frac{1}{4}$.
Strychnin. sulph	gr. $\frac{1}{60}$–$\frac{1}{40}$
Hyoscin. hydrobrom	gr. $\frac{1}{200}$

M. S. Give hypodermically at bedtime.

FOR BOILS.

L. Duncan Bulkley commends the following for local application:

Acid. carbol	gr. v.-x.
Ext. ergot	ʒ i-ij.
Pulv. amyli	ʒ ij.
Zinci oxidi	℥ ij.
Rosæ aquæ ung	ʒ viij.

FOR IRRITATING COUGHS.

G. A. Tolman administers the following in one dose for irritating coughs:

Phenacetin	gr. iiss.
Ext. glycyrrhizæ	gr. ij.
Codeini	gr. $\frac{1}{8}$
Sacchar. alb	q.s.

FOR ASTHMA.

According to the *Journal de Medicine de Paris* relief may be obtained by the use of 30 drops every half hour of the following:

Tr. opium	ʒ i
Sulphuric ether	ʒ ij

FOR MALARIA IN CHILDREN.

Tr. eucalypt. globul	8 parts.
Spt. vini diluti	8 parts.
Quininæ muriat	2 parts.
Chinoidini	1.25 2 parts.
Acid. muriat. dil	q.s. ad Solutio.

Twenty to forty drops five times daily.

THE ADMINISTRATION OF COD-LIVER OIL.

The *Gazette hebdomadaire de medicine et de chirurgie* gives the following as Bricemoret's formula:

℞ Cod-liver oil	6,000	grains
Syrup of balsam of Tolu	3,000	"
Tincture of balsam of Tolu	12	drops
Essence of cloves	2	"

The mixture is not to be emulsionized, but simply shaken vigorously before the dose, a tablespoonful, is poured out. After it is taken, the only taste that remains in the mouth is that of the syrup.

FOR HOARSENESS IN SINGERS AND SPEAKERS.

Botey commends the following:

Cocain. hydrochlor	gr. xv.
Strych. sulph	gr. ¾
Aq. destillat	gr. 1,500

Spray throat.

And:

Cocain. hydrochlor	gr. ¾
Tr. Aconiti	♏ x.
White sugar and marshmallow	q.s

Ft. pastillas No. lxxx. S. To dissolve in the mouth.

CHRONIC RHINOPHARYNGITIS.

Fougeray uses menthol in the following combination:

Menthol	1
Oil of sweet almonds, or Liquid vaselin	10

M. S. Apply with a brush.

FOR RHINITIS.

Phenacetin Pulv. amyli	aa ʒ i
Pulv. acaciæ	ʒ ii.

M. Sig. For insufflation several times a day.

FOR ANAL PRURITUS WITH HÆMORRHOIDS.

Ext. hamamelidis fl	℥ i
Ext. ergotæ fl. Ext. hydrastis fl. Tinct. benzoini comp.	aa ℥ ii
Ac. carbolici	*m.* v.
Ol. olivæ	℥ i.

M. Sig. For rectal injection, one or two ounces at a time, to be well shaken.

OINTMENT FOR VARICOSE ULCER.

Ac. carbolici	ʒ ss
Ac. borici	ʒ iiss
Camphoræ	ʒ ii
Ichthyol	ʒ v
Ol. amygdalæ dulc	℥ iiss
Ung. zinci oxidi	℥ iiiss.

M. Sig. For external use.

A GARGLE FOR FOLLICULAR AMYGDALITIS.

The February number of the *Revue mensuelle des maladies de l'enfance* credits this formula to Lévy:

℞	Beech creosote	8 drops
	Tincture of myrrh, Glycerine,	each 900 grains
	Water	1,800 "

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SUNSTROKE AN EPIDEMIC DISEASE.

A STARTLING departure from the general conception of the etiology of sunstroke is made in a paper recently contributed to the *British Medical Journal* by L. Westeura Sambon. Dr. Sambon believes that heat exhaustion, one form of so called "sunstroke," is merely syncope, and that thermic fever, the other form of sunstroke, is a specific infectious disease, to which he gives the old name for sunstroke, viz., siriasis.

In syncope the skin is moist, pale and cool; the breathing though easy is hurried, the pulse small and soft; the temperature normal or slightly below normal; the pupils dilated, and the loss of consciousness complete. Though death may occur an immediate recovery is the rule. Siriasis, on the other hand, is characterized by a high temperature, profound coma and intense pulmonary congestion, and its mortality is exceedingly high. It prevails in the hot season, and occasionally in an epidemic form.

According to the author the symptoms of the disease, its relapses, its morbid anatomy, its peculiar geographical distribution, its epidemic outbursts, the conditions of climate and soil under which it prevails, the relative immunity to its attacks afforded by acclimatization all clearly point to the specific infectious nature of the disease.

In conclusion Dr. Sambon holds that the specific organism of siriasis is probably spread in the superficial layers of the soil, like other pathogenic micro-organisms, and may be conveyed to man with dust blown by the wind or thrown up under the tread of a marching column. It is then inhaled into the lungs, or ingested into the alimentary canal, where it produces the deadly toxin which probably, as in cholera, becomes absorbed and sets up the symptoms of the disease.

This conclusion will be a startling one to many who have had to deal with sunstroke, but the author adduces so large an array of evidence in its support that it deserves most careful study.

THE TENDENCY OF MEDICAL EDUCATION.

THERE is a steady tendency among teachers of the physical sciences away from didactic lectures and toward demonstration. Nowhere is this more manifest and nowhere is it more desirable than in medicine. The tendency in this direction among medical teachers in Germany was clearly shown in the attitude taken on the subject of clinical lectures by both von Zeimssen and von Jacksch in papers presented by them at the sixteenth annual German Congress on Internal Medicine, which was held during April in Wiesbaden, Germany.

Prof. von Zeimssen is of the opinion that the present teaching of medicine needs improvement in many directions, but especially in the technical clinical training of the young physician. For that, as a preliminary condition, there is needed a lengthening of the medical course to ten semesters, five years (it is now nine semesters); practical laboratory work in chemistry, anatomy, physiology, pathologic anatomy and pharmacology, and fundamental lectures covering the whole ground of special pathology and therapy.

For the practical technical training itself there is required practical courses in diagnosis, not only physical diagnosis so-called, but microscopic, chemic, bacterioscopic, neuro-electro-diagnosis and rhinolaryngoscopic; and systematic practice in the actual employment of the therapeutic methods, dietetics, hydro- and balneotherapy, mechanotherapy, electrotherapy, inhalation and climatotherapy.

For the clinical training, service in a dispensary for a given time under the proper direction, till the student has acquired such efficiency that the care of patients is practically in his hands, is needed.

Finally, to complete and round up his practical clinical training, the student should have a year, or at least a half year of actual hospital service, where as an assistant he would have to assume personal responsibility for his patients. This hospital experience should come after the examinations, as otherwise inevitably the thought of examinations to come would lead him to pay special attention, not to what he considered valuable for practice, but what would be liable to be asked in examination.

Professor von Jaksch also demanded a lengthening of the course. It is now ten semesters long in Austria and he proposes to make it twelve semesters (six years). The extra year he would take away from the nine-years' course in the gymnasia and would devote it to a preparatory course for medicine at the university. This year would be devoted to zoology, botany, minerology and geology. This thorough grounding of the medical student in the natural sciences he believes absolutely needed. Practical medicine would be supplemented by courses, during this year, in photography, Röntgen skiagraphy and the care of electric apparatus.

As to the improvement of present teaching he would secure it by modifications of the present medical course, so that clinical medicine and its scientific foundations would be the principal study up to graduation. The student should go to specialists only to learn where these specialties touched upon general medicine. No details of specialization should be admitted into the course. For specialists he would institute an extra year, during which, in a dispensary, or under a specialist's care, they should learn the operative technic and appropriate diagnostic methods of their specialty, only such as had had such training being permitted (as is customary in Europe) to assume the title specialist.

HIGH MORAL CHARACTER ESSENTIAL IN A PHYSICIAN.

IT is not so much the medical knowledge as it is the moral character of Weelum Maclure and Doc Sifers which wins the regard of the reader and at the same time impresses him with the truth of the characters drawn. The high moral plane upon which the old Scotch doctor lived is insensibly recognized by the public as the proper one, and happily the common one, upon which the medical profession lives and acts.

A decision has just been rendered by the court of last resort in New York state which is of vast importance as settling beyond question the fact that a good moral character is a necessary legal qualification for the practice of medicine. The case was that of the People vs. Benjamin W. Hawker, and the suit was brought by the Medical Society of the County of New York, on the ground that the law forbade any person who had been convicted of a felony to practise medicine. In 1878 the defendant had been convicted of having produced a criminal abortion, and had been sentenced to ten years' imprisonment. Having served his sentence and resumed practice, he was indicted in 1896 for illegally practising medicine. His counsel argued that such a construction of the law added a new punishment for his crime, and was therefore unconstitutional. On the other hand, the people contended that the law was constitutional, and that the state had, in its police power, the right to exact good moral character as one of the qualifications for the practice of medicine. The first trial before Judge Fitzgerald resulted in a verdict of guilty and an imposition of a fine of $250. The case was then taken to the Appellate Division of the Supreme Court, and was tried before five judges, who, on January 5, 1897, after two months' consideration, set aside the conviction, Justice Ingraham delivering a vigorous dissenting opinion. The case was then carried to the Court of Appeals in Albany. This court, in handing down its decision on March 16, 1897, reversed the judgment of the Appellate Division and restored the conviction. Eight judges held that the state had the right to exact good moral character of an individual who desires to practise medicine, but they stated that from the record they were not sure that the defendant was a duly licensed physician at the time of his conviction. The defendant then took the case to the Supreme Court of the United States in Washington, D. C., because of the question of the constitutionality of the law being at stake. The case was argued on December 10, 1897, before eight judges, and was reargued on March 10, 1898, before the full bench of nine judges. On April 18 they delivered their decision, which confirmed the conviction and sustained the constitutionality of the law. Many cases and decisions were cited to show that the state of New York had the right to exact a good moral character, and that in the exercise of that right could exclude those of bad character. The exclusion of the defendant from the practise of medicine was, therefore, not an additional punishment for past offenses.

The greatest value of this decision is probably the moral weight which it will have as an authoritative and final statement that good morals are a requisite for the practitioner of medicine. It is true that the decision of the court is merely the reflection of a public sentiment which already exists, but it is well that this sentiment has crystallized into a definite pronouncement.

The child is father of the man, and it therefore behooves the State to care well for its children. The great demands made upon the eyesight by modern educational methods render it most important that the eyes of the children should be thoroughly well looked after. This fact is being more widely recognized than ever, and is being acted upon by the school authorities of England, France and the leading cities in America. In the schools of Boston and New York the eyes of the children have been examined by the teachers in the public schools, and where vision is found to be defective that fact has been communicated to the parents with a request that an oculist be consulted.